

AMENDED AND RESTATED DEVELOPMENT AGREEMENT

**SUNRISE (COMBINED-PLANNED DEVELOPMENT PROJECT)
HERNANDO COUNTY, FLORIDA**

THIS DEVELOPMENT AGREEMENT is made and entered into on this ____ day of December, 2025, by and between MAK Family Partnership, Ltd., a Florida limited partnership, TBF Partners, Ltd., a Texas limited partnership, TBF Partners II, LLC, a Florida limited liability company, Robert A. Buckner, as Trustee under that certain Trust Agreement dated March 9, 1989, Robert A. Buckner, individually, Sharon P. McKethan, individually, Haley Dowlen, as Personal Representative of the Estate of John Hale McKethan, whose address is c/o James H. Kimbrough, Jr., P.O. Box 1, Brooksville, Fl 34605-0001, Robert A. Buckner, William M. Buckner and James C. Buckner, as Co-Trustees of the Robert C. Buckner Trust, James C. Buckner, individually, and Robert A. Buckner, James C. Buckner and William M. Buckner, as Co-Trustees of the Celia M. Buckner Trust u/t/a dtd 1/16/03, as amended, and J. Thomas Bronson, as Personal Representative of the Estate of T.E. Bronson, as their interests may appear of record, (hereinafter referred to individually as the “Owner” or collectively as the “Owners”), Hawk Sunrise LLC, a Florida limited liability company, whose address is 2502 N. Rocky Pointe Drive Suite 1050 Tampa, FL 33607, and their respective successors and assigns (the “Developer Owner”), and Hernando County, a political subdivision of the State of Florida, whose address is 20 North Main Street, Brooksville, Florida 34601 (the “County” or “Hernando County”) (all collectively referred to herein as the “Parties” or individually as “Party”), regarding the Developer Owner’s proposed development known as Sunrise (the “Development” or “Sunrise Development”).

RECITALS:

WHEREAS, the Owners, as tenants-in-common, together with any respective successors and assigns, collectively own approximately 1,385 acres located in Hernando County, Florida, lying south of S.R. 50, east of Interstate 75, west of Kettering Road, and north of potential future Dashback Street (the “Property”), and which is legally described in EXHIBIT A attached hereto and made a part hereof; and

WHEREAS, on September 12, 2007, the Board of County Commissioners of Hernando County, Florida (the “BOCC”) approved that certain Development Order (the “DRI DO”) for the Sunrise Development of Regional Impact (the “DRI”), pursuant to Section 380.06, Florida Statutes, which governed the Property at that time, and was recorded on September 20, 2007, at O.R. Book 2491, Page 1770, of the Official Records of Hernando County, Florida; and

WHEREAS, on December 10, 2008, the BOCC approved a Rezoning (File Number H08-13) to Combined-Planned Development Project (C-PDP) for the Property (as may be amended, the “C-PDP Rezoning”), with a companion Master Plan (as may be amended, the “Master Plan”), with Deviations, as described therein; and

WHEREAS, pursuant to the DRI approval, the entitlements for the Property remain vested as set forth in the approved C-PDP Rezoning, Master Plan, and DRI DO; and

WHEREAS, pursuant to Chapter 380, Florida Statutes, the Development, as previously approved, is not required to be a Development of Regional impact anymore, and the Owners and Developer Owner have elected, concurrent with the approval of this Development Agreement and the concurrent modification of the C-PDP Rezoning and Master Plan by the BOCC, to abandon the DRI and to terminate the DRI DO, as authorized by applicable Florida law; and

WHEREAS, on September 12th, 2023, the County approved a Development Agreement recognizing the abandonment of the DRI, terminating the DRI DO, and setting forth the terms and conditions of the development of the Property (the “Development Agreement”); and

WHEREAS, on March 28th, 2024, the Developer Owner purchased a portion of the Property from the Owners; and

WHEREAS, on December 12th, 2024, the Hernando County Planning & Zoning Commission approved the Conditional Plat for Sunrise Phase 1; and

WHEREAS, the Hernando County School District (“HCSD”) raised concerns about the revisions to the mitigation for Schools in the previously approved Development; and

WHEREAS, it is the intent of this Amended and Restated Development Agreement, as defined below, to re-affirm that the Property is fully vested from School Concurrency; and

WHEREAS, the Owners and Developer Owner have agreed to amend the Development Agreement to modify the School Mitigation section of the Development Agreement and otherwise simply to restate the Development Agreement (the “Amended and Restated Development Agreement”);

NOW, THEREFORE, in consideration of the sum of \$10.00, and other good and valuable consideration, in hand paid by the Parties hereto, each to the other, simultaneously with the execution and delivery of these presents, and in consideration of the mutual understandings and agreements hereinafter set forth and contained, the Parties agree as follows:

SECTION 1 - FINDINGS OF FACT; INCORPORATED DOCUMENTS

1.1 The above recitals are incorporated herein by reference and made a part hereof.

1.2 The County shall monitor the Development to ensure compliance with the terms, general provisions, and conditions of this Amended and Restated Development Agreement. The County Administrator or his/her designee shall monitor the Development through the review of the site plans, building permits, certificates of occupancy, plats, if applicable, and any other relevant and factual information.

1.3 In each instance where the Developer Owner is responsible for construction, operation, and/or ongoing maintenance of privately owned facilities or infrastructure, the Developer Owner may assign any or all of its responsibilities regarding those facilities to an appropriate entity, which may include a designated Homeowner's Association (“HOA”) or

Community Development District (“CDD”), authorized by law and able to fulfill such responsibilities consistent with statutory requirements.

1.4 The BOCC specifically finds that the Development is consistent with the County's adopted Comprehensive Plan and with the County's Land Development Regulations, subject to the terms of the C-PDP Rezoning and Master Plan, and this Amended and Restated Development Agreement, all as approved by the BOCC.

1.5 The approved Master Plan, pursuant to the approved C-PDP Rezoning (approved on September 12, 2023 by the BOCC), is attached as EXHIBIT B and made a part hereof; provided, however, that any subsequent revision to the C-PDP Rezoning and/or Master Plan approved by the BOCC shall be deemed automatically incorporated herein, unless an amendment to this Amended and Restated Development Agreement is required based upon the terms of the approved Amended and Restated Development Agreement.

1.6 The Sunrise Development Water and Sewer Service Agreement, upon its execution by the Owners/Developer Owner and the County (executing as the Hernando County Water and Sewer District), shall be incorporated into this Amended and Restated Development Agreement by reference and made a part hereof.

1.7 As used herein, the term “Developer Owner” shall include any HOA or CDD organized by the Developer Owner and approved by the County and/or other agencies having jurisdiction, to the extent the Developer Owner elects to delegate any design, permitting, construction, operation, and/or maintenance responsibilities of the Developer Owner under this Amended and Restated Development Agreement, and to the extent such HOA and/or CDD delegation is authorized by applicable law.

1.8 As used herein, the term “Development” or “Sunrise Development” shall mean the Property as developed pursuant to the approved C-PDP Rezoning and Master Plan, as both may be amended from time to time.

SECTION 2 - EFFECTIVE DATE AND DURATION; VESTED ENTITLEMENTS

2.1 This Amended and Restated Development Agreement shall take effect as to Section 3.15.4 and Section 3.15.5 upon the date of execution hereof by the last Party hereto but otherwise shall remain in effect as to all its other provisions from and after its original effective date of September 12, 2023 (the “Effective Date”). The term of this Amended and Restated Development Agreement shall expire on December 31, 2044 (the “Term”) unless modified in writing and executed by the Parties. The Term of this Amended and Restated Development Agreement shall also vest the C-PDP Rezoning and Master Plan for the same length of time in accordance with Section 1 of Article VIII, Appendix A (Zoning) of the Code of Ordinances, Hernando County, Florida; however, all other terms and conditions of the County's Land Development Regulations shall apply, except where inconsistent with the express terms of this Amended and Restated Development Agreement, or the C-PDP Rezoning or Master Plan.

2.2 Notwithstanding any other provision of the County's Land Development Regulations, or other laws or regulations, the Development's entitlements as set forth in the C-PDP Rezoning and Master Plan approved concurrently herewith, shall be vested for the Term of this Amended and Restated Development Agreement, including any extensions of this Amended and Restated Development Agreement approved pursuant to Paragraph 2.1 above.

2.3 Except as specifically set forth in this Amended and Restated Development Agreement, the C-PDP Rezoning (including any modifications approved by the County from time to time), or the Master Plan (including any modifications approved by the County from time to time), and the standard provisions of the County's Land Development Regulations shall apply, which are in effect at the time of the conditional plat, master plan, development permit or other applicable approval required to commence with the development for each phase of the Development; provided, however, that in the event of any conflict, the terms and conditions of this Amended and Restated Development Agreement shall control.

2.4 The requirements and deadlines for all terms of mitigation required for the Development shall be as set forth in this Amended and Restated Development Agreement, which shall prevail over any other existing or future Hernando County Land Development Regulations provisions, or other requirements for pursuit of the Development as vested and authorized in this Amended and Restated Development Agreement.

2.5 "Commence Development" for purposes of this Amended and Restated Development Agreement shall mean that the Developer Owner shall have constructed, or cause to be constructed, any site grading or clearing, infrastructure, roadways, or vertical development.

2.6 This Amended and Restated Development Agreement constitutes final approval for the Developer Owner to develop the Property, as described in EXHIBIT A, subject to all required land development and permitting regulations and in accordance with the terms of this Amended and Restated Development Agreement, and in accordance with the C-PDP Rezoning and Master Plan, as follows (collectively the "Development Entitlements"):

- 2.6.1 4,200 Single Family Units (which may be detached or attached single-family units, for-sale and build-for-rent single-family units)
- 2.6.2 600 Multi-Family Dwelling Units (which may include Senior Adult Attached Housing Units)
- 2.6.3 75 Motel Units
- 2.6.4 325,000 square feet of Retail/Commercial uses approved by the C-PDP Rezoning and Master Plan
- 2.6.5 50,000 square feet of Office uses approved by the C-PDP Rezoning and Master Plan
- 2.6.6 40,000 square feet of Mini-Warehouse Use

2.6.7 Recreational Amenities and Residential Ancillary Uses approved by the C-PDP Rezoning and Master Plan

2.6.8 Public or Semi-Public Uses approved by the C-PDP Rezoning and Master Plan

2.7 Land Use Exchange Matrix ("LUEM") Conversions. The foregoing uses may be exchanged to their trip-equivalent uses pursuant to the LUEM set forth in EXHIBIT C, attached hereto and made a part hereof, and in accordance with Paragraph 3.19 below.

2.8 Transportation Approval. The Traffic Impact Study ("TIS") submitted by Lincks & Associates, Inc., Tampa, Florida, Project No. 21131, for the Project Entitlements above has been approved by the County as last revised in March 2023, subject to the transportation mitigation requirements of this Amended and Restated Development Agreement.

SECTION 3 - SPECIFIC CONDITIONS AND REQUIREMENTS

3.1. General Environmental Matters. The Developer Owner shall comply with all Hernando County Land Development Regulations environmental requirements, and those of other regulatory agencies having jurisdiction over the Development, to the extent applicable to the Property.

3.2. Subsurface Features, Surface Waters and Ground Waters.

3.2.1. Geotechnical Analysis. A geotechnical report prepared by a Florida Registered Geotechnical Professional Engineer shall be used in the design and layout of the Development, and shall be submitted to the County at the time of, and in connection with, the conditional plat, or functional equivalent, of each phase in order to ascertain that the Developer Owner has used its best efforts to avoid adverse impacts to sensitive karst and subsurface features in the overall design and layout of the Development. All construction shall be in accordance with the County's Facility Design Guidelines.

3.2.2. Best Management Practices ("BMPs"). In addition to being in compliance with all applicable requirements of the regulatory agencies (such as the Florida Department of Environmental Protection ("FDEP") and the Southwest Florida Water Management District ("SWFWMD")), without limitation, the Developer Owner shall utilize BMPs to control siltation and prevent turbidity during construction activities. These standards can be achieved by utilizing the best available construction techniques for erosion and sedimentation control, as well as meeting the minimum standards for National Pollution Discharge Elimination System ("NPDES") permitting.

3.3. Drainage, Stormwater and Groundwater.

- 3.3.1 Stormwater Pollution Prevention ("SWPP"). The Developer Owner shall implement SWPP methods for each set of construction plans for the Development, incorporating requirements such as: (1) clearing and grading areas only as they are being prepared for construction; (2) stabilizing areas immediately after construction completion; (3) potential limiting of watering for dust control at the time of construction due to hydrologic conditions; and (4) meeting SWFWMD compliance standards.
- 3.3.2 Stormwater/Drainage Retention Areas ("DRAs"). DRAs, including either "wet" or "dry" DRAs, shall be designed and constructed according to accepted engineering practices, and all applicable regulatory standards of SWFWMD and the Hernando County Facility Design Guidelines.
- 3.3.3 Low Impact Development ("LID"). Stormwater management facilities shall adhere to SWFWMD criteria for the design, construction, operation and maintenance of such facilities in karst sensitive areas, as determined by SWFWMD. Where feasible, the Development shall utilize LID methods to reduce the impact of nutrients on natural wetlands systems. These LID methods may include low impact stormwater design consisting of vegetated swales and buffers, where reasonably feasible, prior to discharge of treated stormwater, tree cluster-rain gardens, pervious pavement, conserving natural areas and wetlands, minimizing development impacts, attempting to maintain site runoff rates, the use of integrated management practices, the implementation of pollution prevention, proper maintenance, and public education.
- 3.3.4 Karst Cover. Soil boring(s) shall be used to verify that suitable soil cover is maintained between each DRA bottom and any subsurface limestone rock strata, limestone pinnacles, or potential karst connections, consistent with applicable regulatory criteria.
- 3.3.5 Periodic Inspections. Once the on-site surface water management system is constructed in accordance with SWFWMD permit requirements, the Developer Owner's engineer shall certify that the on-site surface water management system is in substantial conformity with the local and state regulations. Thereafter, periodic inspections shall be conducted to ensure that the system is being properly maintained in keeping with its permitted design and is capable of accomplishing the permitted level of stormwater storage/treatment for which it was designed and intended.

3.4 Wetlands and Invasive Species.

- 3.4.1 The Developer Owner shall protect wetland areas through a combination of (1) BMPs; (2) SWFWMD and FDEP Environmental

Resource Program (“ERP”) permitting criteria; (3) compliance with the rules and regulations of the U.S. Environmental Protection Agency (“EPA”); (4) NPDES compliance; (5) compliance with applicable mitigation requirements for any wetland impacts approved by the County and applicable permitting agencies; (6) conservation easements in favor of the HOA or CDD, as applicable, which shall include a third-party right of enforcement in favor of the County pursuant to Section 704.06(8), Florida Statutes, where required by the C-PDP Rezoning, the Master Plan, or this Amended and Restated Development Agreement; and (7) wetland/upland buffers as specified in this Development Agreement.

3.4.2 The Developer Owner shall protect on-site surface waters from construction impacts through various measures, including the use of staked hay bales and silt screen fences, to protect wetlands from erosion and sediment transport.

3.4.3 Invasive exotic species shall be removed from all wetlands, designated open spaces, and other areas as required by the County's Land Development Regulations or the approved C-PDP Rezoning or Master Plan during horizontal site development construction. These areas shall also be maintained as needed by the HOA or CDD, as applicable, with invasive plant management techniques approved by any applicable agency development permit(s).

3.5 Flood Plains. The Developer Owner shall comply with the County's Flood Damage Prevention and Protection Ordinance, the County's Buildings and Building Regulations Ordinance, Federal Emergency Management Agency (“FEMA”) regulations and SWFWMD regulations, and shall use the best available data regarding flood plains/flood-prone areas, as authorized by law and accepted by SWFWMD and the County at the time of construction plans approval.

3.6 Common Area Maintenance and Resident Education.

3.6.1 The Developer Owner agrees to include in its HOA Covenants, Conditions and Restrictions (“CC&Rs”) a requirement that where the use of pesticides and/or chemicals are necessary for grounds maintenance within the Development (specifically including open spaces and common areas), such pesticides and chemicals shall be used sparingly and only in accordance with BMPs and provisions of the Florida Yards and Neighborhoods Program. The CC&Rs shall be recorded at the time of approval of each final subdivision plat against those portions of the Development subject to such plat. Furthermore, the Developer Owner agrees that during the period of ownership or control of all portions of the Development where the use of pesticides and/or chemicals are necessary for grounds maintenance, within those portions of the Development it continues to own or control, such

pesticides and chemicals shall be used sparingly and only in accordance with BMPs and the provisions in this Paragraph.

- 3.6.2 The Developer Owner (or its designated builders) shall provide new residential property owners with materials and information regarding the Florida-Friendly Landscaping Program, a University of Florida/IFAS Extension program in cooperation with the Hernando County Utilities Department ("Florida-Friendly Landscaping Program"), and the County's Fertilizer Ordinance, and encourage use of the principles, techniques, and landscaping recommendations within such materials and information. Such guidelines shall be included in the HOA CC&Rs for the Property as well.

3.7 Soils and Erosion.

- 3.7.1 Grading Plan. The Developer Owner shall develop a grading plan that utilizes the pre-development topography to the maximum extent reasonably feasible. The grading plan shall be provided to the County at the time of, and in connection with, each conditional plat, or functional equivalent, application.

3.7.2 Site Disturbance/Erosion.

- a) The Development shall be designed to complement the topography and minimize site disturbance and erosion by construction phasing, limiting site clearance while maximizing retention of existing vegetation, timely revegetation of cleared areas, and preservation of existing grades and slopes in Development design and construction.
- b) The Developer Owner shall use BMPs (i.e., those BMPs generated by FDEP and SWFWMD) to control soil erosion.
- c) The Developer Owner shall protect on-site surface waters from construction impacts through various measures, including the use of staked hay bales and silt screen fences to reduce both erosion and sediment transport into wetland areas.
- d) The Developer Owner shall minimize wind erosion from clearing and grubbing operations by performing such operations only on individual parcels of land where construction is scheduled to proceed.
- e) The Developer Owner shall minimize fugitive dust through sodding, water sprinkling, seeding, mulching or planting of landscaped material in cleared and disturbed areas.

- f) The Developer Owner shall conduct geotechnical testing for development areas consistent with County and/or SWFWMD adopted regulations to identify and address any areas of soil raveling/slumping. Should any noticeable soil slumping or sinkhole formation become evident before or during construction activities, the Developer Owner shall comply with the permit conditions of SWFWMD to develop a plan of action and corrective measures to correct the problem. Once a plan of action and corrective measures are determined, the Developer Owner shall complete the required actions/measures in accordance with any permit requirements.
- g) A geotechnical report prepared by a Florida Registered Geotechnical Professional Engineer shall be provided for review by the County Engineer at the time of construction plans review to identify and recommend BMPs and professionally recognized engineering practices that address the identification of unsuitable soils, if present, to include the following:
 - (i) The stripping of existing topsoil and vegetation/roots and undercutting pockets of organic soils and/or deleterious material, if encountered.
 - (ii) The backfilling and compaction with structural fill in required lifts.
 - (iii) The compaction and densification of the ground surface to recommended standards and depths.

3.8 Buffers and Open Space.

- 3.8.1. Open space shall meet the minimum requirements of the Code of Ordinances, Hernando County, Florida, and shall generally include the Oak Hammock Preservation Area and the I-75 Buffer Area as identified in the approved C-PDP Rezoning and Master Plan, other jurisdictional wetland buffers, neighborhood park sites, vegetated (both natural and any enhanced) buffers, pedestrian trails that provide for connectivity, and areas of open space preservation, as ultimately approved in conjunction with the C-PDP Rezoning, Master Plan, conditional plat, construction plans review and/or site development review.
- 3.8.2. As part of the above open space, the Developer Owner shall provide the following preservation and/or buffer areas:

- a) A 40-foot-wide open space corridor/perimeter buffer along the Development's western common boundary with the I-75 right-of-way (the "I-75 Buffer Area"). This buffer shall preserve existing natural, native vegetation as set forth below but may contain passive trails, picnic areas and/or educational viewing areas for passive use. This open space shall be maintained by the HOA or CDD. In areas where the development parcels directly abut the existing I-75 drainage retention areas, the required natural buffer area shall be reduced from 40 feet to 20 feet in width. In locations where the natural vegetation in the I-75 Buffer Area does not have 80% opacity, the natural buffer shall be enhanced such that 80% opacity can be achieved within three (3) years after planting. If disturbance of a natural area within the I-75 buffer is required for adjacent development purposes, then re-planting shall be required such that 80% opacity can be achieved within three (3) years. The Developer Owner shall have the option, at its election, to install a perimeter wall on the development side of the I-75 Buffer Area, in whole or in part, for any portion thereof. In the event the Developer Owner elects to construct such wall, the natural buffer shall remain on the I-75 side of the wall, but the obligation to enhance the natural buffer to achieve 80% opacity shall not apply to such segment of the I-75 Buffer Area where a perimeter wall is constructed by the Developer Owner.
- b) The approximate 17-acre existing oak hammock area identified on the Master Plan (the "Oak Hammock Preservation Area"), the uses for which shall be limited as set forth in the C-PDP Rezoning. A neighborhood park may be co-located adjacent to the Oak Hammock Preservation Area, to facilitate parking and/or pedestrian access for passive use of the Oak Hammock Preservation Area as set forth in the CPDP Rezoning and Master Plan. This open space corridor shall be maintained by the HOA or CDD. No listed plant species shall be removed from the Oak Hammock Preservation Area or other natural vegetative buffers or natural preservation areas identified on the Master Plan.
- c) A 15-foot buffer along the north side of the future right-of-way for Dashback Road adjacent to the Development; provided, however, that the buffer shall not be required where such future right-of-way is adjacent to wetlands, drainage retention areas, or flood plain mitigation areas.

- d) All other neighborhood park and perimeter buffer requirements shall be as set forth in the Land Development Regulations at the time of conditional plat for such portions of the Development. The I-75 Buffer Area and the Oak Hammock Preservation Area shall be counted toward the open space requirements for the Development, and if such areas contain trails or other access, or other passive use facilities for Development residents, also shall count toward the neighborhood park requirements for the Development.

- 3.8.3. The Developer Owner shall provide the County an accounting upon each application for conditional plat for each phase of development, of the allocation of open space (as to both park space and other open spaces) for that conditional plat and an accounting of the total cumulative park space and other open space at that point in the development process. Conservation easement areas in favor of the HOA or CDD, which shall include a third-party right of enforcement in favor of the County pursuant to Section 704.06(8), Florida Statutes, as applicable, shall be identified at each conditional plat, where applicable under this Amended and Restated Development Agreement, to protect wetland preservation areas and designated conservation areas (including any which contain designated wildlife habitat).
- 3.8.4. Pedestrian trails, including but not limited to boardwalks, previous and impervious trails, and pedestrian access, may be permitted in passive open space areas as designated at the time of conditional plat review. Active recreational activities shall not be permitted in areas designated for buffers and passive open space; however, passive uses such as trails, picnic areas, and educational viewing shall be allowed. The Development's internal multipurpose trail system shall connect (as development phases are constructed) to the paths currently being constructed by FDOT in the SR 50 right-of-way adjacent to the Development, which then will facilitate the ultimate connection via SR 50 (by FDOT or others) to the Withlacoochee River State Trail.
- 3.8.5. The Developer Owner shall prepare, or cause to be prepared, a comprehensive wildlife survey, prepared by a qualified professional, prior to any development occurring on the Property. Furthermore, copies of any permits shall be provided prior to site alteration or the commencement of construction and the issuance of building permits by the County.
- 3.8.6. The Developer Owner shall incorporate into its HOA and/or CDD documents, at a minimum: management provisions for all conservation areas, wetland buffers, perimeter natural buffers, open

spaces and pedestrian trails; identification and protection of any listed animal and plant species in the designated open space/buffer/preservation areas; provisions for the distribution of educational materials to the Development's residents; a habitat management plan for the designated preservation areas; and a pet management plan.

- 3.8.7. The use of pesticides within conservation areas shall be consistent with Florida Fish and Wildlife Conservation Commission ("FWC") requirements. Pesticides with a high toxicity to wildlife, wetlands or surface waters shall not be permitted. In the event the Developer Owner elects to construct a golf course amenity for the Development, the Developer Owner shall provide a Pest Management/Chemical Management Plan including implementation, management and operational control procedures, including the responsible party for such management.

3.9 Native Habitat Within Designated Buffer Areas and Open Spaces. To the extent there is existing, native vegetation identified for preservation by this Amended and Restated Development Agreement in the designated wetland buffers, conservation easement areas, and perimeter buffers maintained by the HOA and/or CDD which attract pollinators or provide food, shelter or habitat for wildlife, such native vegetation shall be preserved, to the extent reasonably feasible.

3.10 Water Supply and Conservation.

- 3.10.1 Water Supply. The Hernando County Utilities Department ("HCUD") shall provide water supply for the Development, as required in Section 4 below, subject to the following terms and conditions:

- a) No individual resident wells shall be allowed; however, non-potable wells or reclaim water service shall be allowed for multi-family or commercial parcel sites under a single ownership, and common area irrigation managed by the HOA or CDD, as applicable.
- b) The Developer Owner shall provide HCUD with a phasing schedule for the projected delivery of occupied residential units and non-residential square footage anticipated on an annual basis for a 5-year forecast period, which projections shall be updated annually by the Developer Owner to enable HCUD to plan and to construct capital improvements to its water treatment facilities, as required to meet the service commitment to the Development set forth in Section 4 below.

- c) In consideration for the County's commitment to reserve utility service capacity for the Development pursuant to Section 4 below, the Developer Owner has agreed to reserve an approximate five (5) acre site in the northwest portion of the Development as conceptually identified on the Master Plan (the "Water Plant Site") for potential acquisition by HCUD as part of its regional potable water supply system, subject to the following terms and conditions:
- (i) The County shall commence immediately and then complete its feasibility analysis for the Water Plant Site prior to the Developer Owner's request for approval of its conditional plat for the first phase of development within the Development, including, without limitation, any soils composition, water quantity, or water quality analysis (as the Water Plant Site location impacts the development locations within the Master Plan).
 - (ii) In the event the initial proposed site does not satisfy the County's soils composition or water quality requirements, the Parties shall cooperate in good faith to locate an alternative location for the Water Plant Site, which in any event shall be determined prior to the Developer Owner's requested conditional plat approval for the first phase of development of the Development, such that the development plan schedule is not adversely impacted by such County feasibility process. Any mutually agreed relocation of the Water Plant Site shall not require any Master Plan amendment, C-PDP Rezoning amendment, or Development Agreement amendment for the Development.
 - (iii) The County shall not delay, impede, or condition the Developer Owner's conditional plat approval for the first phase of development within the Development by reason of any County delay in completing its feasibility analysis for the Water Plant Site.
 - (iv) Once the location is approved by the County, the Water Plant Site reservation shall be automatically released ten (10) years after the Effective Date of this Amended and Restated Development Agreement as an administrative minor modification of the approved C-PDP Rezoning or Master Plan if HCUD has not elected to acquire and has closed upon same.

- (v) In exchange for the conveyance, the Developer Owner shall be compensated as required by Florida law for the fair market value of the site, in cash, at the time of such conveyance.
 - (vi) Effective immediately upon execution and approval of this Amended and Restated Development Agreement, the Owners and Developer Owner shall grant HCUD access to the site to perform soil, water quantity and water quality testing to verify adequacy for public water use.
 - (vii) The Developer Owner shall disclose the Water Plant Site location in the HOA Documents for the residential portions of the Development, so that residents are aware of such future plant location.
 - (viii) In the event HCUD elects to acquire, close upon and construct the Water Plant Site facilities, and in the event there is not public roadway access to the Water Plant Site, the Developer Owner shall provide the County with permanent, non-exclusive access easements over applicable private roadways within the adjacent portion(s) of the Development, for ingress-egress for operation and maintenance of the Water Plant Site facilities.
- d) As further consideration for the County's commitment to reserve utility service capacity for the Development pursuant to Section 4 below, and to connect the Development to the County's water service, the Developer Owner at the Developer Owner's expense, shall design and construct the Development's water distribution piping to include a 12-inch diameter transmission system with three (3) points of connection to the County's water distribution system: (i) at the 12-inch diameter water main at the eastern end of Old Trilby Road west of Interstate 75; (ii) at the 12-inch diameter water main in the road right of way, north of the Development; and (iii) at the 12 or 16-inch diameter water main in Kettering Road, as depicted on EXHIBIT D. These improvements shall be installed during the first phase of development.
- e) The Developer Owner and HCUD shall enter into a Water and Sewer Service Agreement (the "W&S Agreement") pursuant to standard terms and conditions applicable within

Hernando County; provided, however, that the service commitment shall be consistent with the foregoing terms herein and Section 4 below.

- f) The Developer Owner (or its designated builders) shall be liable for all water connection fees and other standard fees and costs in accordance with the terms of the W&S Agreement.

3.10.2 Water Conservation. The Development shall utilize the following water conservation techniques:

- a) Minimum flush volume toilets shall be standard in residential and non-residential construction.
- b) “WaterSense” fixtures shall be used on interior plumbing for residential construction and used where applicable in non-residential construction.
- c) Automatic shut-off faucets shall be used where applicable in nonresidential construction.
- d) “WaterSense” irrigation controllers shall be installed on all residential and non-residential irrigation systems.
- e) Low-volume irrigation spray heads, as well as drip systems, shall be used where appropriate for both residential and non-residential landscaping. Residents shall be encouraged to use water-conserving devices for additions they might make to their irrigation systems.
- f) Drought tolerant landscaping shall be utilized for common areas. The Developer Owner shall ensure that all landscape design and maintenance throughout the Development on Developer Owner maintained property conforms to the Florida-Friendly Landscaping Program.
- g) Residential lot landscaping requirements shall comply with LDC Section 10-29. The Developer Owner will ensure that no HOA rules, covenants, or other mechanisms of directives for the residential portions of the Development require homeowners to utilize high-water-use turfgrass on individual lots.
- h) The Developer Owner shall ensure that irrigation systems operated for Developer Owner common or controlled areas

utilize and maintain computerized irrigation based on weather station information, moisture sensing systems to determine existing soil moisture, evapotranspiration rates, and zone control, to ensure water conservation.

- i) The Developer Owner shall encourage that irrigation systems installed for single-family residences in the Development, and fertilizer and pesticides practices, conform to the Florida-Friendly Landscaping Program standards at the time of initial installation of the irrigation system.
- j) The Developer Owner shall establish restrictions on the percentage of high maintenance landscape areas.
- k) The Developer Owner shall ensure that the Development's grounds maintenance staff and/or landscape installation/maintenance firms are trained and educated in the practices mandated by the Florida-Friendly Landscaping Program. The staff and/or firms shall ensure that ongoing landscape maintenance activities shall continue to adhere to such Program.
- l) The Developer Owner (or its designated builders) shall provide water use education materials to Development residents and highlight the role of residents in the protection of the ground and surface water resources. The program shall be coordinated with the Florida-Friendly Landscaping Program.
- m) The Developer Owner shall require/install low volume laundry machines and dishwashers where hook-ups are provided in individual units, and in all common laundry rooms.

3.11 Wastewater. HCUD shall provide wastewater service to the Development as required in Section 4 below, subject to the following terms and conditions:

- 3.11.1. The Developer Owner's obligations regarding wastewater will be contained in the standard W&S Agreement referenced above, which shall be consistent with the terms of this Amended and Restated Development Agreement.
- 3.11.2. HCUD's commitment for wastewater service capacity for the Development pursuant to Section 4 below is based upon the County's prior, vested commitments to the Development in the DRI DO and the adopted I-75/SR 50 PDD Area Plan. However, to meet its commitments,

the County is required to undertake a capacity expansion for the Water Reclamation Facility ("Ridge Manor WRF") adjacent to the Development. Based on the prior vested commitments to the Development, the County shall program and implement such Ridge Manor WRF capacity expansion and/or other system improvements when and as required to meet the Development demands for such utilities service. To facilitate such planning and expansion process, the Developer Owner shall annually provide to HCUD the 5-year utilities demand projections for wastewater, as also required for projected potable water demand pursuant to Section 3.10.1.b, above.

- 3.11.3. The Developer Owner shall be liable for all sewer connection fees and other fees and costs in accordance with the standard terms of the W&S Agreement.
- 3.11.4. The Developer Owner shall disclose the Ridge Manor WRF location in the HOA Documents for the residential portions of the Development, so that future residents are aware of the Ridge Manor WRF location.
- 3.11.5. The Developer Owner shall provide a twenty (20) foot natural/enhanced buffer with 80% opacity achieved within three (3) years along the north and west boundary line of the Ridge Manor WRF where adjacent to the boundary, when and as each adjacent phase of the Development is developed. At the Developer Owner's option, the Developer Owner may elect to install a buffer wall on the development side of the buffer area, for any segment of the required buffer, in which event any natural vegetation shall remain within the buffer, but the enhancement requirement to 80% opacity shall not apply for such segment where such buffer wall is constructed.

3.12 Fire Suppression and EMS Services.

- 3.12.1. The Developer Owner shall pay all applicable Fire Protection and Emergency Medical Services Capital Facilities Impact Fees for the Development.
- 3.12.2. The Developer Owner also shall pay the Public Capital Facilities Impact Fee Surcharge(s) for the Development within the I-75/SR 50 PDD.

3.13 Emergency Management.

- 3.13.1 Hurricane Preparedness. The Developer Owner shall mitigate potential hurricane preparedness impacts by either (i) providing an on-site or adjacent facility (which may be a portion of a community recreation facility, a public services building, or a public, private or charter school), or (ii) payment to the County public shelter fund in the amount of

\$106,638.00. This required hurricane preparedness mitigation payment shall occur prior to the issuance of a building permit for the 601st residential building and shall relieve the Developer Owner of the obligation to construct an on-site facility. In the event the County at any time has a countywide hurricane preparedness impact fee ordinance, the Developer Owner shall receive impact fee credits for the amount of any cash mitigation payment that has been, or is made, pursuant to this Paragraph.

- 3.13.2 Pursuant to the Florida Building Code, builders in the Development shall equip new homes with impact resistant windows and doors, or hurricane storm shutters that comply with the requirements of the Florida Building Code.
- 3.13.3 The Development's HOA or CDD shall provide and maintain a public information program for the purpose of educating the Development's residents regarding the potential hurricane threat.
- 3.13.4 The Development's HOA or CDD shall work with the Hernando County Emergency Management Department to develop and maintain training for a Community Emergency Response Team ("CERT Training") for the Development.

3.14 Affordable Housing.

- 3.14.1 In the event Hernando County adopts a countywide ordinance providing for contributions to a housing trust fund by residential development projects, the Development shall comply with such countywide ordinance subsequent to the effective date and applicability of such ordinance.
- 3.14.2 In the event the Developer Owner (or its designated builders) construct multifamily rental units, which include affordable or workforce housing within the Development, the applicable builder shall designate a minimum of 30 multi-family rental units within such multifamily portion for those residents making less than 80% of the area median income for the Tampa-St. Petersburg-Clearwater Metropolitan Statistical Area, as identified by the Florida Housing Finance Corporation. Based upon available funding, program requirements and subject to the approvals by associated agencies, the County shall provide up to \$150,000.00 in State Housing Initiatives Partnership ("SHIP") financing for construction of these units. Financing shall be provided as a 0% interest loan, forgivable after the 30-year affordability period expires.

3.15 Parks and Recreation.

- 3.15.1 The Developer Owner shall provide the minimum neighborhood park acreage as required by the County's Land Development Regulations subject to credit for the qualified areas designated in this Amended and Restated Development Agreement.
- 3.15.2 The above on-site park site requirements are in addition to, and not in lieu of, the payment of Parks Impact Fees. Such Fees shall be paid at the prevailing rate.
- 3.15.3 The Developer Owner also shall pay the Parks Impact Fee Surcharge(s) required for the Development within the I-75/SR 50 PDD.

3.16 Schools.

- 3.16.1 School Site Reservation. For the "School Site Reservation Period" set forth below, the Owners have agreed to reserve a school site located on Kettering Road adjacent to the Development, containing approximately 49 gross acres of land, as more particularly described in EXHIBIT D attached hereto (the "School Site").
 - a) Accept School Site. Should HCSD elect to proceed with the conveyance of the School Site, the School Site will be conveyed at fair market value as mutually agreed by HCSD and the Owners (the "School Site Value"). Pursuant to the Owners and HCSD successfully negotiating and agreeing upon a Purchase and Sale Agreement, except as otherwise provided in Paragraph 3.15.5 below, at Closing the Owners shall accept dollar-for-dollar school impact/surcharge fee credits in the full amount of the School Site Value, which credits shall be fully assignable to any developer/builder for use in any school concurrency service area, in any Hernando County project, pursuant to the Florida Impact Fee Act. Credits issued will be non-refundable. The Purchase and Sale Agreement shall also provide for an expedited third-party dispute process to resolve any disagreement about the School Site Value, based upon independent MAI appraisals. Notwithstanding any other terms or conditions of the Purchase and Sale Agreement, HCSD must close on the School Site on or before December 31, 2026 (the "School Site Reservation Period").
 - b) Decline School Site. Should HCSD decline to proceed with the conveyance of the School Site, the Developer Owner will make a cash payment, or credit from escrow to the extent credits are available, to HCSD in an amount equal to ten percent (10%) of the total amount of the Educational Impact

Fee Surcharges for the Phase One Conditional Plat, not later than prior to the issuance of the first building permit in the Phase One Conditional Plat in the amount of \$102,945.30 (the “Mitigation Payment”). The Mitigation Payment obligation may be satisfied by utilizing Escrowed Impact Fees. The entirety of the Development shall be vested for purposes of school concurrency, subject to the Developer Owner or its respective successors interest paying an amount equal to ten percent (10%) of the total amount of the Educational Impact Fee Surcharges for each subsequent phase of the Development, prior to the issuance of the first (1st) building permit for each approved subsequent conditional plat for the Development. The Developer Owner shall be awarded and will accept dollar-for-dollar school impact/surcharge fee credits in exchange for the cash payment, which credits shall be fully assignable to any developer/builder for use in any school concurrency service area, in any Hernando County project, pursuant to the Florida Impact Fee Act. Credits issued will be non-refundable.

- 3.16.2 Impact Fee Credit Escrow Account. HCSD will establish an impact fee credit escrow account for all Educational Facilities Impact Fees and Educational Facilities Impact Fee Surcharges paid by the Developer Owner for any of its affiliated or related developments located in Hernando County from December 1, 2024, (the “Escrowed Impact Fees”) until such time that HCSD decides whether to accept or reject the School Site. The Developer Owner shall provide written notice to the County and HCSD of any “affiliated or related developments” impact fees which are to be attributed towards the Escrowed Impact Fees. The Escrowed Impact Fees will be held for the benefit of this Development. If HCSD accepts the School Site, at closing HCSD shall utilize the Escrowed Impact Fees to pay the Owners for such portion of the School Site Value in cash, with the remainder to be paid in school impact and surcharge fee credits as set forth above, and subject to the terms and conditions of the Purchase and Sale Agreement between HCSD and the Owners. If HCSD elects to reject the School Site, the Escrowed Impact Fees will be released to HCSD for their use, provided that they have established an Impact Fee Credit account for the benefit of each development in an amount equal to the Escrowed Impact Fees as of the date of the rejection received associated with each development. Any such school fee credits awarded for the School Site Value shall be immediately assignable by the Owners to Developer Owner, pursuant to separate agreement, at the time of closing on the School Site.
- 3.16.3 Credits. Impact Fee credits issued, regardless of whether HCSD elects to accept or decline the School Site donation, shall be issued by HCSD to the Developer Owner/Owners at a rate of dollar-for-dollar. Impact Fee Credits

will be assignable and transferable pursuant to Section 163.31801(10), Florida Statutes. All credits issued will be non-refundable.

3.16.4 PDD Multiplier. Pursuant to Section 23-157(a)(1)(e) of the Hernando County Code, the Amended and Restated Development Agreement is intended to provide for the full mitigation of impacts as to Schools by the enforcement of this Amended and Restated Development Agreement and the multiplier set forth in Section 23-157 (b) shall not apply.

3.16.5 Capacity Reservation: School Concurrency. The entire Sunrise Development will remain vested as to school concurrency, subject to the payment of school impact fees and school impact fee surcharges and the terms and conditions of this Amended and Restated Development Agreement. The School Board agrees to reserve school students' stations for the Development, subject to the Developer Owner complying with the terms and conditions of this Amended and Restated Development Agreement. Subject to the payment of Impact Fees and the Mitigation Payment, the Developer Owner shall be entitled to rely on the School Concurrency Determination and the capacity reservation for the Development, as set forth in this Amended and Restated Development Agreement, and such right of reliance shall survive the expiration of this Amended and Restated Development Agreement.

3.16.6 Impact Fees and Impact Surcharges. Notwithstanding anything contained herein, the Development shall pay all applicable countywide educational facilities impact fees and educational facilities impact fee surcharges at the then current rate, without offset or exemption, except as provided for in this Amended and Restated Development Agreement.

3.17 Public Services Government Center Site. The Development shall reserve for a period of five (5) years within the mixed-use portion of the Development up to five (5) acres of land for the County potentially to establish an East Side Government Center, or in such acreage and at such location as otherwise mutually agreed by the parties. Once the location is approved by the County, the East Side Government Center site shall be automatically released five (5) years after the Effective Date of this Amended and Restated Development Agreement as an administrative minor modification of the approved C-PDP Rezoning or Master Plan if the County has not elected to acquire and close upon same. If the County elects to acquire such site, the land valuation shall be at fair market value (pursuant to appraisal performed in accordance with Uniform Standards of Professional Appraisal Practice); provided, however, that the parties may negotiate such compensation in the form of cash consideration or impact fee/PDD Area Plan surcharge fee credits applicable against the "buildings" portion of the County's public capital facilities impact fees and public capital facilities impact fee surcharges, or a combination thereof. If the County accepts the land, the County acknowledges that the East Side Government Center shall be deemed a "public facility" and, therefore, not part of the retail, commercial, or office development entitlements authorized for the Development (in other words, the square footage in the public facility shall not be counted against the Development's approved entitlements).

3.18 Trails and Bicycle/Pedestrian Connectivity. The Development shall provide the following:

- 3.18.1 A 10-foot-wide paved multi-purpose pathway along one side of Sunrise Parkway from the primary entrance to the residential portion of the Development on Sunrise Parkway at Cracker Crossing Boulevard, southward along such primary collector roadway through the residential portion of the Development to its southernmost residential community entrance on Sunrise Parkway. This multi-purpose pathway shall include a sidewalk in accordance with the Hernando County Facility Design Guidelines on the opposite side of the primary collector roadway and shall be constructed in phases as the primary collector roadway (Sunrise Parkway) is extended through the Development to meet the Development's access requirements.
- 3.18.2 All other streets within the Development shall meet the current Hernando County Facility Design guidelines for sidewalks.
- 3.18.3 The Developer Owner shall provide a network of trails, sidewalks, and bicycle/pedestrian facilities to interconnect the Oak Hammock Preservation Area, neighborhood parks, commercial areas, the school site (as applicable), buffers, and conservation areas throughout the Development. A conceptual connectivity plan shall be provided with each conditional plat or phase of development, and further defined during the construction plans process. Connectivity may use open/recreation space, upland buffers, and perimeter buffer areas, as permitted by this Amended and Restated Development Agreement, in the Developer Owner's discretion. Trails may be designed to be pervious or impervious, as determined appropriate by the Development's characteristics, and as determined by the Developer Owner.

3.19 Transportation Mitigation Requirements.

- 3.19.1 Required Right-of-Way Dedications. The Owners or Developer Owner (as applicable) shall convey to the County for public use, by plat or warranty deed (in such form and with such legal description and sketch as approved by the County) those lands within the Development related to the rights-of-way specified below as required by the I-75/SR 50 PDD Road Network and as conceptually depicted on the Master Plan:
 - a) Sunrise Parkway. The right-of-way (to the extent not previously conveyed to the County) for Sunrise Parkway, at a width of 120 feet, from S.R. 50 south to the southernmost boundary of the Development. The affected portion or portions of this right-of-way shall be donated prior to each

final subdivision plat which covers, abuts or joins the affected portion or portions of Sunrise Parkway.

- b) Parallel Collector Road (to SR 50) a/k/a Cracker Crossing Blvd. Extension. The right-of-way for the extension of the Parallel Collector Road (to SR 50) identified in the 1-75/SR 50 PDD, n/k/a Cracker Crossing Blvd., from its existing terminus at Sunrise Parkway, eastward to its intersection with Kettering Road, at a right-of-way width of 80 feet (the "Cracker Crossing Blvd. Extension"). Depending on the proposed uses and access plan for the mixed-use parcel, the foregoing Cracker Crossing Extension may be deemed to satisfy the County's Frontage Road Ordinance and Facility Design Guidelines, as applicable to the portion of the Development's mixed-use area which is bordered by SR 50, Sunrise Parkway, Cracker Crossing Blvd. Extension, and Kettering Road; however, the County reserves the right to require an additional frontage road (in whole or in part) in the discretion of the County Engineer, based upon the functional requirements for the final site plan within said mixed-use area. The Cracker Crossing Blvd. Extension right-of-way shall be donated prior to final subdivision plat (if platted) which covers, abuts, or adjoins the Parallel Collector Road, or prior to issuance of the first non-residential building permit for vertical construction in this mixed-use area, whichever occurs first.
- c) Kettering Road. The right-of-way for any portion of Kettering Road contiguous with and adjacent to the Development's eastern boundary, to the extent necessary to provide a right of way width of 80 feet from the existing centerline of Kettering Road adjacent to the Development. This right-of-way shall be donated prior to final subdivision plat (if platted) which covers, abuts, or adjoins the affected portion of Kettering Road, or prior to issuance of the first building permit for vertical construction in this area, whichever occurs first.
- d) Dashback Street. A right-of-way for potential future construction (by others) of Dashback Street, along the southern boundary of the Development, as follows: (i) from the southeastern project boundary to a point 500 feet east of the I-75 right-of-way boundary (the "Transition Point"), a width of 80 feet, and from the Transition Point to the I-75 right-of-way boundary, a width of 160 feet. The affected portion or portions of this right-of-way shall be donated prior to each final subdivision plat which covers, abuts, or adjoins

the affected portion or portions of Dashback Street, or when such right-of-way is required for construction of Dashback Street by others, whichever occurs first.

- 3.19.2 Terms for Right-of-Way Conveyances. The foregoing rights-of-way conveyances are collectively referred to in this Amended and Restated Development Agreement as the “Right-of-Way Dedications,” as identified in Section 3.19.1.a-d above. Where required, the Right-of-Way Dedications also shall include retention/detention areas for any adjacent roadway segment; provided, however, that such roadway drainage may be commingled with Development drainage. Any required roadway drainage for adjacent roadway segments shall be determined not later than the conditional plat, or functional equivalent, approval for the adjacent Development phase. Unless required sooner by the County for roadway improvements to be made by the County or others (for Kettering Road or Dashback Street), the Right-of-Way Dedications shall be made as each adjacent land phase is platted for the Development, or as such roadway segment otherwise is required for access to the Development. Based upon the original terms of the Sunrise DRI/DO and the requirements of the adopted I-75/SR 50 PDD Area Plan, none of the foregoing right-of-way land dedications shall be impact fee creditable; however, the donation of this substantial right-of-way without cash or impact fee/surcharge fee credit compensation constitutes a material part of the transportation mitigation provided by this Development.
- 3.19.3 I-75/SR 50 PDD Pipeline Improvements; Site-Related Access Improvements; Fee Credits. To the extent not first constructed by others, the Developer Owner shall design, permit and construct the improvements for (i) Sunrise Parkway and (ii) Cracker Crossing Blvd. Extension, in development phases when and as required to provide access to the Development (collectively Sunrise Parkway and Cracker Crossing Blvd. Extension are referred to herein as the “Road Segment Pipeline Improvements”), and (iii) the intersection improvements (Dual NBL, NBT, NBR, and Dual WBL) for Cortez Blvd. and Sherman Hills Blvd. Realignment/Sunrise Blvd. when the Development connects to such intersection (the foregoing intersection improvements are referred to herein as the “Sunrise Parkway/SR 50 Intersection Improvements”). In addition, the Developer Owner shall signalize the Sunrise Blvd./Sherman Hills Blvd Realignment/Cortez Blvd. intersection when the signal warrant requirements are triggered by the Sunrise Development traffic impacts and FDOT approves installation of such signalization, provided such signalization has not previously been provided by others (referred to herein as the “Sunrise Parkway/SR 50 Intersection Signalization”). In the event more than one development project has site impacts which trigger such signalization warrants, then the County shall require a fair, proportionate share contribution from each such contributing project. The Sunrise

Parkway/SR 50 Intersection Improvements and the Sunrise Parkway/SR 50 Intersection Signalization both are deemed to be "site-related" transportation mitigation requirements and therefore shall not be eligible for any impact fee credits. However, as provided in the adopted I-75/SR 50 PDD Area Plan, the Developer Owner's design, permitting and construction costs for the Road Segment Pipeline Improvements (Sunrise Parkway and Cracker Crossing Blvd. Extension) are designated as part of the regional roadway network and therefore shall be credited against the applicable roads impact fees and roads impact fee surcharges payable by the Development pursuant to the Impact Fee Surcharge and Planning Overlay Ordinance for the Greater I-75/SR 50 Planned Development District Area, as adopted on September 12, 2007. To summarize the Development's transportation mitigation requirements: (i) the Development shall pay the roads impact fees and roads impact fee surcharges pursuant to the PDD Area Plan; (ii) the Development shall donate the required rights-of-way as specified in this Amended and Restated Development Agreement, without cash compensation or impact fee credits; (iii) the Development shall provide the Sunrise Parkway/SR 50 Intersection Improvements and Sunrise Parkway/SR 50 Intersection Signalization as "site-related" mitigation which shall not be eligible for impact fee credits; and (iv) the Development shall receive roads impact fee and roads impact fee surcharge credits for the Road Segment Pipeline Improvements (Sunrise Parkway and Cracker Crossing Blvd. Extension),

- 3.19.4 Transportation Mitigation Fund Account; Use of Impound Funds; Constructing Entity. The Development shall pay all customary Roads Impact Fees pursuant to the countywide impact fee ordinances and the Roads Impact Fee Surcharges pursuant to the I-75/SR 50 PDD Area Plan as each fee schedule may be amended from time to time, including any future countywide mobility fee replacement for roads impact fees and/or roads impact fee surcharges, subject to the fee credits which shall be provided by the County for the Road Segment Pipeline Improvements. The Development's Roads Impact Fees and Roads Impact Fee Surcharges paid from inception of the Development shall be segregated by Hernando County and accrued in a separate sub-account designated as the "Sunrise Roadway Impound Account." Hernando County and the Developer Owner shall be deemed joint beneficiaries of the Sunrise Roadway Impound Account, to the extent permitted by law. The accrued funds in the Sunrise Roadway Impound Account shall be used exclusively to fund the design, permitting, construction, testing and inspection costs for Road Segment Pipeline Improvements, and once they have been fully funded, for any of the "Additional Pipeline Road Improvements" as defined below. At the discretion of the County, the Developer Owner may be designated as the "Constructing Entity" for one or more of the Additional Pipeline Road Improvements. In such event, the Developer Owner shall not receive any management fee, overhead or profit for acting as the Constructing Entity;

however, all third-party contractor/consultant expenses incurred for the design, permitting, construction, testing and inspection costs for the Additional Pipeline Road Improvements shall be paid from the Sunrise Roadway Impound Account. In the event the Developer Owner is not designated as the Constructing Entity, Hernando County shall contract for and manage the Additional Pipeline Road Improvements and shall use the Sunrise Roadway Impound Account to fund the costs for same. Nothing in this Section shall waive any procurement laws, rules and regulations.

3.19.5 Transportation Impact Study & Proportionate Cost Share Approval: Designated Pipeline Road Improvements. The Developer Owner has completed the required Transportation Impact Study ("TIS") which is referenced on EXHIBIT E, and made a part hereof, pursuant to the methodology required by Hernando County, and has provided the proportionate cost share calculations for the Development based upon the County's required proportionate share formula, which TIS and proportionate cost share amount have been approved by the County. The approved proportionate cost share amount for the Development is \$1,380,790.00, which is less than the projected Roads Impact Fees for the Development, based upon current rates. Based upon the approved TIS, the County has identified the proportionate share transportation mitigation improvements necessary to vest the Development entitlements, which proportionate share transportation mitigation improvements are set forth on EXHIBIT F, attached hereto and made a part hereof ("Additional Pipeline Road Improvements"). Hernando County reserves the right to (1) budget and allocate additional County funds to expedite the completion of any of the Additional Pipeline Road Improvements set forth on EXHIBIT F; or (2) to add additional projects to be funded by the County from the Sunrise Roadway Impound Account; provided, however, that the Developer Owner's total obligation for all transportation mitigation improvements related to the Development entitlements shall not exceed the Developer Owner's aggregate amount of all Roads Impact Fees and Roads Impact Fee Surcharges to be paid in the normal course of development for the Development, less the fee credits earned by the Developer Owner for the Road Segment Pipeline Improvements (Sunrise Parkway and Cracker Crossing Blvd. Extension) under this Development Agreement. Hernando County reserves the right to alter, modify or otherwise revise the Additional Pipeline Road Improvements from time to time, in its discretion, subject to the following requirements:

- a) No designated Additional Pipeline Road Improvement shall be modified or deleted by Hernando County after a contract has been awarded for construction thereof, and any previously incurred design or permitting expenses incurred with respect to such modified or deleted Additional Pipeline

Road Improvement shall be paid or reimbursed, as applicable, from the Sunrise Roadway Impound Account.

- b) The designated Additional Pipeline Road Improvements are scheduled to commence as sufficient Development Roads Impact Fees and Roads Impact Fee Surcharges are paid into and accrued in the Sunrise Roadway Impound Account, on a sequential basis for each designated Additional Pipeline Road Improvement set forth on EXHIBIT F, and based upon the estimated project costs for each designated project.
- c) EXHIBIT F may be revised by Hernando County administratively to account for any new or replacement Pipeline Road Improvement subsequently identified by Hernando County without formal amendment of this Amended and Restated Development Agreement; provided, however, that such adjustments must conform to the scheduled accrual of paid Roads Impact Fees and Roads Impact Fee Surcharges into the Sunrise Roadway Impound Account to cover the estimated costs for such project (unless the County elects to supplement such Sunrise Roadway Impound Account funds as set forth above). In such event the updated and revised EXHIBIT F shall be deemed incorporated by reference into this Amended and Restated Development Agreement.
- d) Notwithstanding EXHIBIT F (including any subsequent amendment of EXHIBIT F by Hernando County), the Development's financial obligation for all transportation mitigation improvements required for the Development shall not exceed the aggregate amount of all Roads Impact Fees (as may be subsequently amended by countywide impact fee ordinance) and Roads Impact Fee Surcharges when and as paid by the Development through buildout of the Development, less the amount of the fee credits awarded to the Developer Owner under this Amended and Restated Development Agreement for the Road Segment Pipeline Improvements constructed by the Developer Owner pursuant to Section 3.19.3 above.
- e) The Additional Pipeline Road Improvements shall be commenced not later than the date that sufficient funds have been accrued in the Sunrise Roadway Impound Account for each respective proportionate share transportation mitigation project (subject to discretionary earlier funding by the County) set forth on EXHIBIT F, and thereafter pursued

diligently to conclusion by either Hernando County or the Developer Owner (as Constructing Entity) subject to force majeure, agency permitting delays, availability of contractors, materials and supplies, or other events beyond the reasonable control of the Constructing Entity. The order of the Additional Pipeline Road Improvements shall be subject to revision by Hernando County, in its discretion, or at the request of the Developer Owner, subject to an updated traffic analysis related to the specific Pipeline Road Improvement. However, any modified list and/or timing for Additional Pipeline Road Improvement projects shall follow the pace of accrual of paid Roads Impact Fees into the Sunrise Roadway Impound Account, as the sole source to fund the design, permitting, and construction of said Additional Pipeline Road Improvements, unless the County elects to provide supplemental funding, in its sole discretion.

- f) All design and construction plans for the Road Segment Pipeline Improvements (by the Developer Owner) and the Additional Pipeline Road Improvements (by the County or the Developer Owner as Constructing Entity) shall be in accordance with Hernando County standards and requirements and, if/where applicable, FDOT requirements.

3.19.6 The Developer Owner shall provide updated trip generation rates commencing five (5) years from the initial Effective Date of this Amended and Restated Development Agreement, and at subsequent intervals at each additional 600 dwelling units, when requested by the County. The Developer Owner's interim Development traffic generation reports shall include (i) traffic monitoring on Kettering Road and (ii) traffic monitoring for potential signalization at Cortez Blvd./Sherman Hills Blvd. Realignment, based upon monitoring criteria to be provided by the County to the Developer Owner's traffic consultant. The County will use the interim traffic reports to monitor the status of Kettering Road and Cortez Blvd./Sherman Hills Blvd. Realignment signalization as potential Additional Pipeline Road Improvements hereunder.

3.20 Land Use Exchange Matrix ("LUEM").

- 3.20.1 LUEM Conversions. The Parties agree that this Amended and Restated Development Agreement constitutes final approval for the Developer Owner to develop the Property as described in the approved C-PDP Rezoning and Master Plan. The Parties further agree that the Developer Owner may increase certain land uses, with corresponding reductions in other land uses, pursuant to the LUEM under the C-PDP Rezoning and Master Plan, and subject to the limitations set forth therein, without requiring any amendment to this Amended and Restated Development Agreement.

- 3.20.2 Allowed Land Use Exchanges. The LUEM attached hereto as EXHIBIT C, and made a part hereof, contains the only land use exchanges recognized under this Amended and Restated Development Agreement.
- 3.20.3 No Waiver of Zoning or Master Plan Review or Approval. The Parties agree that the land use exchanges identified above do not grant the Developer Owner any Zoning or Master Plan entitlement as a matter of right, but are merely to avoid the amendment of this Amended and Restated Development Agreement where there are no resulting increases in external vehicle trips per the LUEM.

3.21 Historic and Archeological Resources. In the event any archaeological artifacts are discovered during construction, the Developer Owner shall stop construction in that area and immediately notify the County and the Division of Historical Resources of the Florida Department of State. Proper protection measures, under the supervision of a qualified professional, shall be undertaken to the satisfaction of the County and the Division of Historical Resources of the Florida Department of State, and shall be provided by the Developer Owner.

3.22 Street Lighting Alternative and Requirements.

- 3.22.1 Lighting throughout the Development shall be designed to shield the night sky. Shielding means that fixtures, either directly from the lamp or indirectly from a fixture, are projected below a horizontal plane running through the lowest point on the fixture where light is emitted. All street lighting within the Development shall be owned and maintained by the Developer Owner, or its CDD, HOA, or other designated entity.
- 3.22.2 Solar street lighting shall be allowed within public or private road rights-of-way areas and shall be privately owned and/or operated by the HOA, CDD, or the Developer Owner, at the Developer Owner's discretion.
- 3.22.3 Street and parking lot lighting shall be oriented downward with cut-off fixtures. Fifty percent (50%) of all lighting fixtures within parking lots shall be turned off within one hour after closing or between 10:00 p.m. and sunrise, whichever occurs first.
- 3.22.4 Neighborhood/Retail, Office, Recreation/Clubhouse and public or private recreational facility lighting within any residential development parcel shall not exceed twenty-five (25) feet in height, shall be full cut-off fixtures, and shall only be illuminated while they are in use. The illumination must be extinguished by an automatic shutoff device between the hours of 11:00 p.m. and sunrise, or one hour after the termination of the event and/or use, whichever occurs first. This provision shall not apply to any mixed-use or non-residential use areas within the Development.
- 3.22.5 Searchlights used for advertising purposes are prohibited.

3.23 Solid Waste Collection. The Development shall be deemed a Universal Collection Service Area, pursuant to Section 14-46(d) of the Code of Ordinances, Hernando County, Florida (as the same may be amended or renumbered from time to time), for purposes of the pick-up and disposal of solid waste and recyclables.

3.24 Transit. The Developer Owner agrees to provide an appropriate transit stop location on Sunrise Parkway or Cracker Crossing Boulevard Extension, adjacent to a mixed-use, amenity, or other non-residential use area within the Development. The transit location shall be mutually agreed by the County and the Developer Owner and shall include a pull-out lane, protective shelter, and such other appurtenances as mutually agreed by the County and the Developer Owner.

SECTION 4 – CONCURRENCY

Based upon the vesting provided in the prior DRI DO, and subject to the terms and conditions of this Amended and Restated Development Agreement, the Development shall remain vested for concurrency as to the following matters:

4.1 Potable Water. Pursuant to the County's Adequate Public Facilities Ordinance, the County hereby deems that concurrency for potable water to serve the Development Entitlements, with an estimated demand of:

- a) 1,680,000 GPD for Residential
- b) 88,200 GPD for Non-Residential
(*i.e.*, Retail Commercial & Office)

has been satisfied, subject to full compliance with the W&S Agreement and the terms of this Amended and Restated Development Agreement (including the provisions regarding the Water Plant Site), and assuming that no substantial deviation occurs which would require concurrency under this Paragraph to be reevaluated, or would require additional mitigation.

4.2 Sewage Treatment (Wastewater). Pursuant to the County's Adequate Public Facilities Ordinance, the County hereby deems that concurrency for sewage treatment (wastewater) for the Development Entitlements, with an estimated demand of:

- a) 816,000 GPD for Residential
- b) 58,800 GPD for Non-Residential
(*i.e.*, Retail Commercial & Office)

has been satisfied, subject to full compliance with the W&S Agreement and the terms of this Amended and Restated Development Agreement, and assuming that no substantial deviation occurs which would require concurrency under this Paragraph to be reevaluated, or would require additional mitigation.

4.3 Drainage/Stormwater Management Facilities. Pursuant to the County's Adequate Public Facilities Ordinance, the County hereby deems that concurrency for stormwater management to serve the Development Entitlements, together with the proposed construction of the necessary drainage/stormwater management facilities and DRAs, has been satisfied, conditioned upon the Developer Owner obtaining all applicable state and local permits and further subject to full compliance with the terms of this Amended and Restated Development Agreement, and assuming that no substantial deviation occurs which would require concurrency under this Paragraph to be reevaluated, or would require additional mitigation. Notwithstanding the foregoing, no building permit shall be issued for development unless and until the Developer Owner provides evidence to the satisfaction of the County that adequate drainage/stormwater management facilities shall be available concurrent with the impacts of the Development at the levels of service adopted in the Hernando County Comprehensive Plan and all applicable County codes and regulations.

4.4 Solid Waste. Pursuant to the County's Adequate Public Facilities Ordinance, the County hereby deems that concurrency for solid waste for the Development Entitlements, with an estimated demand of:

- a) 54,050 Pounds Per Day – Residential
- b) 7,015 Pounds Per Day – Non-Residential
(i.e., Retail Commercial & Office)

has been satisfied, subject to full compliance with the terms of this Amended and Restated Development Agreement, and assuming that no substantial deviation occurs which would require concurrency under this Paragraph to be reevaluated, or would require additional mitigation.

4.5 Parks and Open Space. Pursuant to the County's Adequate Public Facilities Ordinance, the County hereby deems that concurrency for parks and open space for the Development and/or their aggregate equivalent on the Property, with an estimated demand of:

- a) 22.76 acres User-Oriented Parks
(2.0 acres/1,000 persons x 2.37 persons/dwelling unit x 4,800 dwelling units)
- b) 22.76 acres Open Space
(2.0 acres/1,000 persons x 2.37 persons/dwelling unit x 4,800 dwelling units)

has been satisfied, subject to full compliance with the terms of this Amended and Restated Development Agreement, and assuming that no substantial deviation occurs which would require concurrency under this Paragraph to be reevaluated, or would require additional mitigation.

4.6 Transportation. Pursuant to the County's Adequate Public Facilities Ordinance, the County hereby deems that concurrency for transportation (roads) for the Development is satisfied by the Developer Owner's compliance with this Amended and Restated Development Agreement.

4.7 Substantial Modification. In the event a substantial modification (in accordance with the County's Land Development Regulations) occurs in the course of developing the Development necessitating an amendment to this Amended and Restated Development Agreement (see Section 5 below), then the County reserves the right to reevaluate its concurrency approvals under this Section, and to require additional data, analysis, studies, and mitigation, without limitation, from the Developer Owner, pursuant to applicable laws, ordinances and regulations.

SECTION 5 - FURTHER PROVISIONS

BE IT FURTHER RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF HERNANDO COUNTY, FLORIDA, AS FOLLOWS:

5.1 This Amended and Restated Development Agreement shall run with the land and shall be binding upon all affected persons, including the successors and assigns of the Owners and/or Developer Owner. The prior DRI DO simultaneously has been abandoned, rescinded, terminated, and cancelled by the BOCC, and this Amended and Restated Development Agreement shall supersede in its entirety and replace the prior DRI DO in all respects, and shall govern the future Development.

5.2 The Developer Owner shall record (1) the BOCC Resolution abandoning the DRI and its associated DRI DO; and (2) this Amended and Restated Development Agreement, in the Official Records of Hernando County, Florida, within thirty (30) days after the adoption date hereof by the BOCC, and shall provide a copy of the recorded documents to the County.

5.3 In the event any portion or section of this Amended and Restated Development Agreement is determined to be invalid, illegal or unconstitutional by a court of competent jurisdiction, such decision shall in no manner affect the remaining portions or sections of this Amended and Restated Development Agreement, which shall remain in full force and effect.

5.4 Absent the County demonstrating that substantial changes in the conditions underlying the approval of this Amended and Restated Development Agreement have occurred, or that this Amended and Restated Development Agreement was based on substantially inaccurate information provided by the Developer Owner, or that the change is clearly established by the County to be essential to the public health, safety, or welfare, the Development (as approved under this Amended and Restated Development Agreement) shall not be subject to down-zoning, unit density reduction, or intensity reduction from the Effective Date of this Amended and Restated Development Agreement until the development approvals granted hereunder terminate pursuant to this Amended and Restated Development Agreement, or applicable law.

5.5 This Amended and Restated Development Agreement shall expire as provided in Section 2 above.

5.6 The approval of this Amended and Restated Development Agreement shall not exempt any portion or unit of the Development from the payment of all required impact fees or impact fee surcharges at the prevailing rate. Impact fees and impact fee surcharges shall be due in

full without credit or offset, except as expressly provided for in this Amended and Restated Development Agreement.

5.7 The Chairman of the BOCC is authorized to execute this Amended and Restated Development Agreement on behalf of Hernando County, Florida.

5.8 Nothing herein shall be construed as prohibiting the Developer Owner from requesting that the BOCC review the interpretation, implementation or enforcement of this Amended and Restated Development Agreement.

5.9 The Parties may execute this Amended and Restated Development Agreement in duplicate originals, with separate signature pages, all of which shall constitute and comprise the same original Amended and Restated Development Agreement. The fully executed original Amended and Restated Development Agreement shall be recorded in the Official Records of Hernando County, Florida, as provided herein.

[SIGNATURES ON FOLLOWING PAGES]

ADOPTED IN REGULAR SESSION THIS _____ DAY OF _____, 2025.

**ACCEPTED AND AGREED TO BY
HERNANDO COUNTY, FLORIDA:**

**BOARD OF COUNTY COMMISSIONERS
HERNANDO COUNTY, FLORIDA**

Attest: _____
Douglas A. Chorvat, Jr.
Clerk of Circuit Court & Comptroller

By: _____

(SEAL)

APPROVED AS TO FORM AND LEGAL SUFFICIENCY

By: _____
County Attorney's Office

ACCEPTED AND AGREED

TO BY THE OWNER/DEVELOPER OWNER:

The Owner/Developer Owner (by and through its Agent and/or Trustee named below) hereby accepts and agrees to all terms, conditions and restrictions contained in the Development Agreement set forth above and further agrees to be bound by the same for itself, and its heirs, successors and/or assigns as long as this Development Agreement remains effective. Notwithstanding anything herein, the terms, conditions and restrictions above shall terminate when this Development Agreement expires, unless the Development Agreement expressly provides for the term, condition or restriction to remain in effect following the expiration of the Development Agreement.

“DEVELOPER OWNER”

HAWK SUNRISE LLC, a Florida limited liability company

By: _____

Print Name: _____

Title: _____

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization, this ____ day of _____, 2025, by _____, as _____ of Hawk Sunrise LLC, a Florida limited liability company, on behalf of the company.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

“OWNER”

MAK FAMILY PARTNERSHIP, LTD., a
Florida limited partnership

By: _____

Print Name: James H. Kimbrough, Jr.

Title: Partner

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization, this ____ day of _____, 2025, by James H. Kimbrough, Jr., as Partner of MAK Family Partnership, LTD., a Florida limited partnership, on behalf of the partnership.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

TBF PARTNERS, LTD., a Texas limited partnership

By: TBF MANAGEMENT, LLC, its General Partner

By: _____

Print Name: _____

Title: _____

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization, this ____ day of _____, 2025, by _____, as _____ of TBF Management, LLC, a Florida limited liability company, General Partner of TBF Partners, LTD., a Texas limited partnership, on behalf of the partnership.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

TBF PARTNERS II, LLC, a Florida limited liability company

By: _____

Print Name: J. Thomas Bronson

Title: Manager

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization, this ____ day of _____, 2025, by J. Thomas Bronson, as Manager of TBF Partners II, LLC, a Florida limited liability company, on behalf of the company.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

Robert A. Buckner, as Trustee under that
certain Trust Agreement dated March 9, 1989

By: _____

Print Name: Robert A. Buckner

Title: Trustee

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online
notarization, this ____ day of _____, 2025, by Robert A. Buckner, as Trustee under that certain
Trust Agreement dated March 9, 1989.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

Robert A. Buckner, individually

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization, this ____ day of _____, 2025, by Robert A. Buckner.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

Sharon P. McKethan, individually

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization, this ____ day of _____, 2025, by Sharon P. McKethan.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

Haley Dowlen, as Personal Representative of
the Estate of John Hale McKethan

By: _____

Print Name: Haley Dowlen

Title: Personal Representative

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online
notarization, this ____ day of _____, 2025, by Haley Dowlen, as Personal Representative of the
Estate of John Hale McKethan.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

Robert A. Buckner, as Co-Trustee of the
Robert C. Buckner Trust

By: _____

Print Name: Robert A. Buckner

Title: Co-Trustee

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization, this ____ day of _____, 2025, by Robert A. Buckner, as Co-Trustee of the Robert C. Buckner Trust.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

William M. Buckner, as Co-Trustee of the
Robert C. Buckner Trust

By: _____

Print Name: William M. Buckner

Title: Co-Trustee

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization, this ____ day of _____, 2025, by William M. Buckner, as Co-Trustee of the Robert C. Buckner Trust.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

James C. Buckner, as Co-Trustee of the
Robert C. Buckner Trust

By: _____

Print Name: James C. Buckner

Title: Co-Trustee

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization, this ____ day of _____, 2025, by James C. Buckner, as Co-Trustee of the Robert C. Buckner Trust.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

James C. Buckner, individually

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization, this ____ day of _____, 2025, by James C. Buckner.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

Robert A. Buckner, as Co-Trustee of the Celia M. Buckner Trust u/t/a dtd 1/16/03, as amended

By: _____

Print Name: Robert A. Buckner

Title: Co-Trustee

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization, this ____ day of _____, 2025, by Robert A. Buckner, as Co-Trustee of the Celia M. Buckner Trust u/t/a dtd 1/16/03, as amended.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

James C. Buckner, as Co-Trustee of the Celia
M. Buckner Trust u/t/a dtd 1/16/03, as amended

By: _____

Print Name: James C. Buckner

Title: Co-Trustee

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online
notarization, this ____ day of _____, 2025, by James C. Buckner, as Co-Trustee of the Celia M.
Buckner Trust u/t/a dtd 1/16/03, as amended.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

William M. Buckner, as Co-Trustee of the
Celia M. Buckner Trust u/t/a dtd 1/16/03, as
amended

By: _____

Print Name: William M. Buckner

Title: Co-Trustee

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online
notarization, this ____ day of _____, 2025, by William M. Buckner, as Co-Trustee of the Celia M.
Buckner Trust u/t/a dtd 1/16/03, as amended.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

J. Thomas Bronson, as Personal Representative
of the Estate of T.E. Bronson

By: _____

Print Name: J. Thomas Bronson

Title: Personal Representative

Date: _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online
notarization, this ____ day of _____, 2025, by J. Thomas Bronson, as Personal Representative of
the Estate of T.E. Bronson.

NOTARY PUBLIC:

☐ Personally Known OR ☐ Produced Identification

Signature: _____

Type of Identification Produced:

Print Name: _____

Serial/Commission Number: _____

My Commission Expires: _____

SCHEDULE OF EXHIBITS

EXHIBIT A	Legal Description of the Property/Development
EXHIBIT B	Approved Master Plan per Approved C-PDP Rezoning (BOCC Approved on June 13, 2023)
EXHIBIT C	Land Use Exchange Matrix (“LUEM”)
EXHIBIT D	Graphic Depiction for Reserved School Site Location & Points of Connection for Water Service
EXHIBIT E	Approved Transportation Impact Study (“TIS”)
EXHIBIT F	Additional Roadway Pipeline Projects/Proportionate Share Improvements

EXHIBIT A

Legal Description

A parcel of land lying within Sections 5, 6, 7 and 8, Township 23 South, Range 21 East, Hernando County, Florida, being more particularly described as follows:

For a POINT OF BEGINNING commence at the Southwest corner of the Southeast 1/4 of said Section 8; thence N89°05'38"W, along the South boundary of the Southwest 1/4 of said Section 8, 2670.54 feet to the Southwest corner of said section 8; thence N89°16'50"W, along the South boundary of the Southeast 1/4 of said Section 7, 2655.16 feet to the Southwest corner of the Southeast 1/4 of said Section 7; thence N89°16'33"W, along the South boundary of the Southwest 1/4 of said Section 7, a distance of 949.57 feet to the Easterly right-of-way of Interstate No. 75; thence along said Easterly right-of-way of Interstate No. 75 the following twenty six (26) courses and distances: (1) N00°04'124"E, 100.01 feet; thence (2) S89°16'33"E, 500.84 feet; thence (3) N00°21'45"E, 833.29 feet; thence (4) N36°30'15"W, 278.06 feet; thence (5) N04°37'19"W, 266.47 feet; thence (6) N79°47'40"W, 310.01 feet to a non-tangent point of curvature; thence (7) Northerly 1892.11 feet along the arc of a curve to the right, said curve having a radius of 5579.58 feet, a central angle of 19°25'47", and a chord bearing and distance of N17°55'51"E, 1883.06 feet; thence (8) N27°38'44"E, 666.59 feet; thence (9) S62°17'56"E, 39.91 feet; thence (10) N27°42'04"E, 158.00 feet; thence (11) N27°43'58"E, 805.72 feet; thence (12) N74°21'19"E, 490.92 feet; thence (13) N35°47'35"E, 764.07 feet; thence (14) N16°21'19"E, 204.80 feet; thence (15) N57°44'06"W, 343.20 feet; thence (16) N32°15'54"E, 814.49 feet to a point of curvature; thence (17) Northeasterly 794.94 feet along the arc of a curve to the left, said curve having a radius of 9277.00 feet, a central angle of 4°54'35", and a chord bearing and distance of N29°48'37"E, 794.70 feet; thence (18) S65°34'45"E, 219.30 feet; thence (19) N39°04'36"E, 329.47 feet; thence (20) N24°25'15"E, 768.24 feet; thence (21) N19°45'08"E, 546.02 feet; thence (22) N00°24'128"E, 358.35 feet; thence (23) N77°16'08"W, 217.28 feet to a non-tangent point of curvature; thence (24) Northeasterly 156.72 feet along the arc of a curve to the left, said curve having a radius of 9277.00 feet, a central angle of 00°58'05", and a chord bearing and distance of N15°00'36"E, 156.72 feet to a point of compound curvature; thence (25) Northeasterly 460.30 feet along the arc of a curve to the left, said curve having a radius of 4693.00 feet, a central angle of 5°37'11", and a chord bearing and distance of N11°42'58"E, 460.12 feet to a point of compound curvature; thence (26) Northeasterly 241.78 feet along the arc of a curve to the left, said curve having a radius of 2401.00 feet, a central angle of 5°46'11", and a chord bearing and distance of N06°11'37"E, 241.68 feet to the South boundary line of the map or plat of SUNRISE COMMERCIAL PLAZA, per Plat Book 31, Page 11, of the Public Records of Hernando County, Florida; thence along the South boundary of said map or plat of SUNRISE COMMERCIAL PLAZA the following eleven (11) courses and distances: (1) S74°23'51"E, 171.91 feet; thence (2) N15°36'121"E, 127.32 feet; thence (3) S89°43'43"E, 490.94 feet to a point of curvature; thence (4) Southeasterly 39.27 feet along the arc of a curve to the right, said curve having a radius of 25.00 feet, a central angle of 89°59'34", and a chord bearing and distance of S44°43'41"E, 35.36 feet; thence (5) S89°43'41"E, 140.45 feet; thence (6) N00°16'143"E, 25.00 feet; thence (7) S89°43'46"E, 108.45 feet to a point of curvature; thence (8) Easterly 147.45 feet along the arc of a curve to the left, said curve having a radius of 499.77 feet, a central angle of 16°54'14", and a chord bearing and distance of N81°49'27"E, 146.91 feet; thence (9) N73°22'34"E, 138.62 feet to a point of curvature; thence (10) Easterly 123.85 feet along the arc of a curve to the right, said curve having a radius of 420.11 feet, a central angle of 16°53'30", and a chord bearing and distance of N81°49'27"E, 123.41 feet; thence (11) S89°43'41"E, 170.00 feet; thence leaving the South line of said plat, run S00°17'12"W, 23.50 feet to the Southwest corner of "Parcel 3.25" as described in Official Records Book 3742, Page 848, of the Public Records of Hernando County, Florida; thence S89°43'41"E, along the South boundary of said "Parcel 3.25", 1739.73 feet; thence N00°16'119"E, 103.50 feet to a point of curvature: thence Northerly 365.53 feet along the arc of a

curve to the left, said curve having a radius of 2655.77 feet, a central angle of $7^{\circ}53'10''$, and a chord bearing and distance of $N04^{\circ}17'152''E$, 365.24 feet to a point of reverse curvature; thence Northerly 270.75 feet along the arc of a curve to the right, said curve having a radius of 1883.73 feet, a central angle of $8^{\circ}14'07''$, and a chord bearing and distance of $N04^{\circ}07'24''w$, 270.52 feet; thence $NOO^{\circ}00'120''W$, 35.95 feet to the South right-of-way of State Road No. 50; thence along said South right-of-way of State Road No. 50 the following four (4) courses and distances: (1) $S89^{\circ}45'44''E$, 634.36 feet; thence (2) $S89^{\circ}49'37''E$, 508.97 feet to a point of curvature; thence (3) Easterly 743.51 feet along the arc of a curve to the right, said curve having a radius of 5597.65 feet, a central angle of $07^{\circ}36'37''$, and a chord bearing and distance of $S86^{\circ}01'19''E$, 742.97 feet; thence (4) $S44^{\circ}.55'59''E$, a distance of 33.03 feet to the Westerly right-of-way of Kettering Road; thence along said Westerly right-of-way of Kettering Road $SOO^{\circ}26'27''W$, 1425.34 feet to the Northeast corner of lands described in Official Records Book 868, Page 602, of the Public Records of Hernando County, Florida; thence along the North, West and South boundaries, respectively, of said lands described in Official Records Book 868, Page 602 the following three (3) courses and distances: (1) $N8994'01''W$, 285.22 feet; thence (2) $S00^{\circ}25'.59''W$, 655.00 feet; thence (3) $S89^{\circ}34'01''E$, 285.13 feet to the aforementioned Westerly right-of-way of Kettering Road; thence along said Westerly right-of-way of Kettering Road, $SOO^{\circ}26'27''W$, 3231.94 feet to a point on the North boundary of the Northeast 1/4 of said Section 8; thence $S89^{\circ}56'22''W$, along said the North boundary of the Northeast 1/4 of said Section 8, a distance of 2588.19 feet to the West boundary of the Northeast 1/4 of said Section 8; thence $SOO^{\circ}00'119''W$, along said the West boundary of the Northeast 1/4 of Section 8, 2710.84 feet to the Southwest corner of the Northeast 1/4 of said Section 8; thence $S00^{\circ}00'118''W$, along the West boundary of the Southeast 1/4 of said Section 8, 2702.26 feet to the POINT OF BEGINNING.

Containing 1,312.63 acres more or less.

EXHIBIT B

**Approved Master Plan per Approved C-PDP Rezoning
(BOCC Approved on June 13, 2023)**

EXHIBIT C

Land Use Exchange Matrix (“LUEM”)

EXHIBIT C
SUNRISE
LAND USE EQUIVALENCY MATRIX
4/19/2023

Conversion From	Conversion To								
	Single Family (DU)	Townhomes (DU)	Multi-Family (DU)	Senior Adult Detached (DU)	Senior Adult Attached (DU)	Motel (RMS)	Retail (KSF)	Office (KSF)	Mini-Warehouse (KSF)
Single Family (DU)	-	1.6491	2.4103	3.1333	3.7600	-	-	-	-
Multi-Family (DU)	0.4149	0.6842	-	1.3000	1.5600	-	-	-	-
Motel (RMS)	-	-	-	-	-	-	0.0953	0.2079	2.5780
Retail (KSF)	-	-	-	-	-	10.4952	-	2.1820	27.0567
Office (KSF)	-	-	-	-	-	4.8099	0.4583	-	12.4000
Mini-Warehouse (KSF)	-	-	-	-	-	0.3879	0.0370	0.0806	-

(1) Source - ITE Trip Generation Manual, 11th Edition.

(2) Trip Rates

Single Family	0.9400 TE/DU
Multi-Family	0.3900 TE/DU
Motel	0.3867 TE/RM
Retail	4.0585 TE/KSF
Office	1.8600 TE/KSF
Mini-Warehouse	0.1500 TE/KSF
Townhomes	0.5700 TE/DU
Senior Adult Detached	0.3000 TE/DU
Senior Adult Attached	0.2500 TE/DU

(3) Example: Convert Single-Family to Townhomes

100 DUs = 100 x 1.6491 = 164.91 Townhomes

(4) For land uses not specifically identified a trip equivalency analysis will be required.

EXHIBIT D

**Graphic Depiction for Reserved School Site Location & Points
of Connection for Water Service**

EXHIBIT E

Approved Transportation Impact Study (“TIS”)

TRANSPORTATION ANALYSIS

SUNRISE

Prepared For

D.R. HORTON, INC.

Prepared By



LINCKS & ASSOCIATES, INC.
Engineers - Planners
Tampa, Florida

TRANSPORTATION ANALYSIS

SUNRISE

Prepared For

D.R. HORTON, INC.

Prepared By

LINCKS & ASSOCIATES, INC.
5023 West Laurel Street
Tampa, Florida 33607
813-289-0039
State of Florida Authorization No. EB0004638

Revised March, 2023
Revised January, 2023
December, 2022

Project No. 21132

ali
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by ali
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This item has been electronically signed and sealed by Ali Atefi, P.E. on the time and date stamp using the digital signature. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Ali Atefi, P.E.
Florida Registration Number 43854
5023 West Laurel Street
Tampa, Florida 33607



LINCKS & ASSOCIATES, INC.

TABLE OF CONTENTS

	<u>Page</u>
Introduction.....	1
Estimated AM Peak Hour Project Traffic	5
Estimated PM Peak Hour Project Traffic	5
Project Trip Distribution.....	6
Adjacent Roadways	6
Study Area.....	9
Buildout.....	11
Background Traffic	11
Arterial Analysis.....	14
Intersection Analysis	23
Conclusion.....	30
Proportionate Share	31
Appendix	

LIST OF TABLES

1	AM Peak Hour Trip Generation	3
2	PM Peak Hour Trip Generation	4
3	Study Network.....	10
4	Arterial Analysis (PM Peak Hour) Existing and Budgeted geometry	22
5	Estimated Intersection Level of Service Existing and Budgeted Improvements	25
6	Estimated Intersection Level of Service Existing and Budgeted Improvements	26
7	Estimated Intersection Level of Service Required Improvements for Background Traffic	27
8	Estimated Intersection Level of Service Required Improvements for Background Traffic Plus Project Traffic	28
9	Estimated Intersection Level of Service Required Improvements for Project Traffic..	29
10	Intersection Proportionate Share Determination	32



LIST OF FIGURES

1	Project Location	2
2	PM Peak Hour Project Traffic	7
2A	PM Peak Hour Project Traffic	8
3	PM Peak Hour Existing Traffic.....	12
3A	PM Peak Hour Existing Traffic.....	13
4	PM Peak Hour Peak Season Traffic.....	15
4A	PM Peak Hour Peak Season Traffic.....	16
5	PM Peak Hour 2035 Background Traffic.....	17
5A	PM Peak Hour 2035 Background Traffic.....	18
6	PM Peak Hour 2035 Background Plus Project Traffic	19
6A	PM Peak Hour 2035 Background Plus Project Traffic	20



INTRODUCTION

The purpose of this report is to provide a Transportation Analysis in conjunction with the development of the property located south of Cortez Boulevard (SR 50) and east of I-75 in Hernando County, as shown in Figure 1. The subject property is proposed to be developed for the following land uses:

- Single Family Homes – 4, 200 Dwelling Units
- Townhomes – 600 Dwelling Units
- Motel – 75 Rooms
- Retail – 325,000 Square Feet
- Office – 50,000 Square Feet
- Self Storage – 40,000 Square Feet

This analysis was conducted in conformance with the approved Traffic Methodology Statement dated June 9, 2022. A copy of the Methodology Statement is included in the Appendix of this report.

Tables 1 and 2 provide the AM peak hour and PM peak hour trip generation for the proposed project. The analysis was based on ITE land use code 150 instead of 151. Since the net difference in the new external trip ends is 14 less trip ends than utilized in the analysis for the AM peak hour and 13 less for the PM peak hour the analysis was not updated. The trip generation utilized in the analysis is contained in Tables A-1 and A-2 in the Appendix of this report.



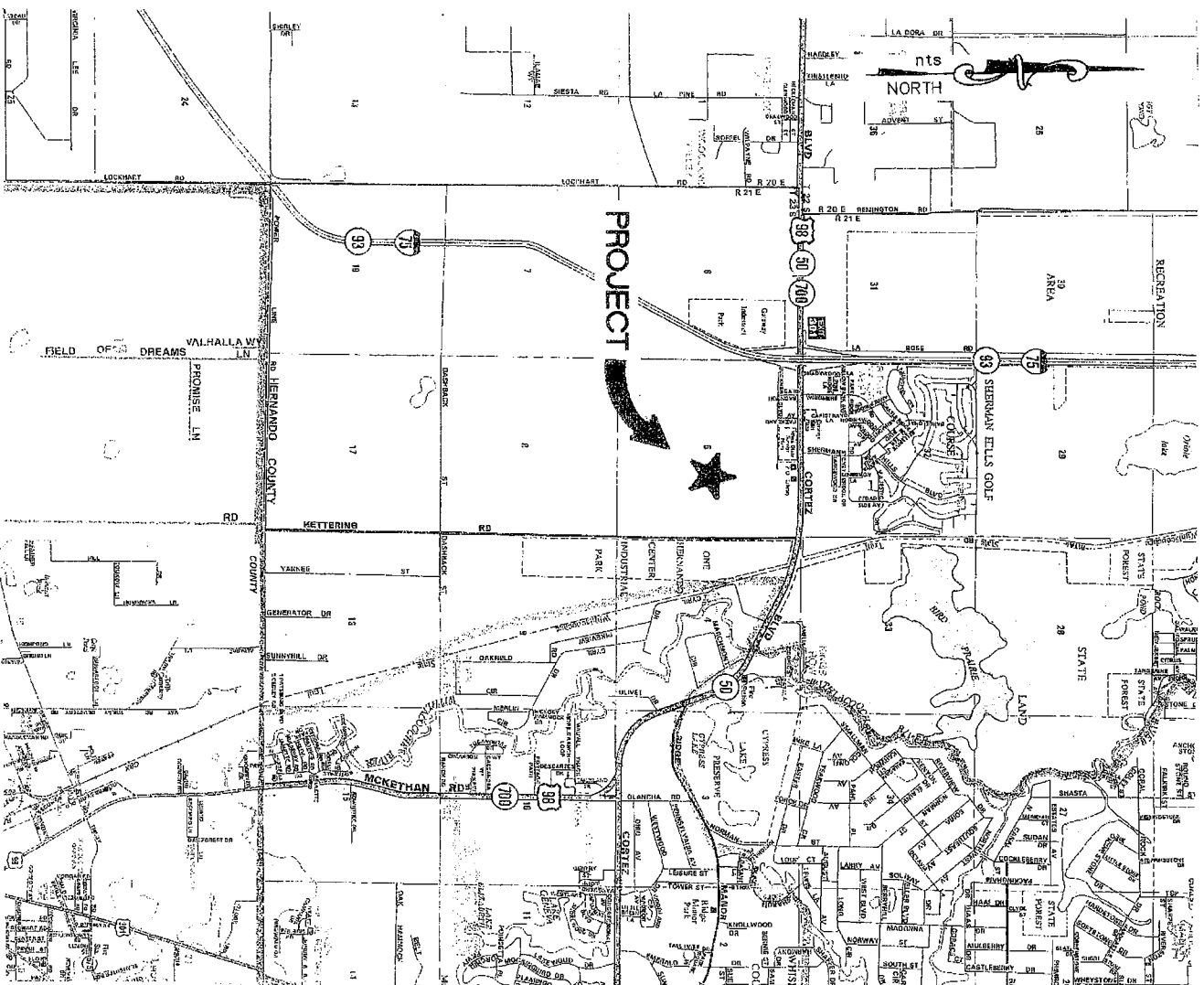


FIGURE 1
PROJECT LOCATION



LINCKS & ASSOCIATES, INC.



TABLE 1
AM PEAK HOUR TRIP GENERATION

Land Use	ITE LUC	Size	AM Peak Hour Trip Ends (1)			Internal Trip Ends (2)			Passerby Trip Ends (3)			New External AM Peak Hour Trip Ends		
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Single Family	210	4,200 DU's	764	2,176	2,940	15	23	38	0	0	0	749	2,153	2,902
Multi-Family	221	600 DU's	51	171	222	1	2	3	0	0	0	50	169	219
Motel	320	75 Rooms	10	16	26	0	4	4	0	0	0	10	12	22
Retail	820	325,000 SF	202	123	325	28	19	47	33	20	53	141	84	225
Office	710	50,000 SF	81	11	92	7	3	10	0	0	0	74	8	82
Mini-Warehouse	151	40,000 SF	<u>2</u>	<u>2</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>2</u>	<u>4</u>
Total			1,110	2,499	3,609	51	51	102	33	20	53	1,026	2,428	3,454

(1) Source - ITE Trip Generation Manual, 11th Edition.

(2) Source - ITE Trip Generation Handbook, 3rd Edition. (NCHRP 684)

(3) Source - ITE Trip Generation Manual, 11th Edition.

• Passerby Trips

Retail - 19%

In - $(202-28) \times 0.19 = 33$

Out - $(123-19) \times 0.19 = 20$



TABLE 2
PM PEAK HOUR TRIP GENERATION

Land Use	ITE LUC	Size	PM Peak Hour Trip Ends (1)			Internal Trip Ends (2)			Passerby Trip Ends (3)			New External PM Peak Hour Trip Ends		
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Single Family	210	4,200 DU's	2,487	1,461	3,948	170	59	229	0	0	0	2,317	1,402	3,719
Multi-Family	221	600 DU's	143	91	234	10	4	14	0	0	0	133	87	220
Motel	320	75 Rooms	16	13	29	5	2	7	0	0	0	11	11	22
Retail	820	325,000 SF	633	686	1,319	80	186	266	105	95	200	448	405	853
Office	710	50,000 SF	16	77	93	3	17	20	0	0	0	13	60	73
Mini-Warehouse	151	40,000 SF	<u>3</u>	<u>3</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>3</u>	<u>6</u>
Total			3,298	2,331	5,629	268	268	536	105	95	200	2,925	1,968	4,893

(1) Source - ITE Trip Generation Manual, 11th Edition.

(2) Source - ITE Trip Generation Handbook, 3rd Edition. (NCHRP 684)

(3) Source - ITE Trip Generation Manual, 11th Edition.

• Passerby Trips

Retail - 19%

In - $(633-80) \times 0.19 = 105$

Out - $(686-186) \times 0.19 = 95$

• Passerby traffic should not exceed 10% of the adjacent street background traffic

$2,625 \times 0.10 = 262 > 200$

(a) PM peak hour background traffic at the intersection of Cortez Blvd and Parkland Ave

ESTIMATED AM PEAK HOUR PROJECT TRAFFIC

Based on data contained in the Institute of Transportation Engineers' (ITE) Trip Generation Manual, 11th Edition, 2021, the land uses are estimated to generate/attract 3,633 trip ends during the AM peak hour with 1,130 inbound and 2,503 outbound, as shown in Table A-1.

Given the development is to consist of residential, office and retail land uses, there is a potential for trips to originate at one land use within the project and have a destination at another use within the project – internal capture. The internal capture was based on the data contained in the ITE Trip Generation Handbook, 3rd Edition (NCHRP 684).

In addition, studies contained in the ITE Trip Generation Manual, 11th Edition, indicate that a percentage of the retail trips already exist on the adjacent roadways – passerby capture. Therefore, the proposed land uses are estimated to generate/attract approximately 3,468 new external AM peak hour trip ends, with 1,041 inbound and 2,427 outbound, as shown in Table A-1.

ESTIMATED PM PEAK HOUR PROJECT TRAFFIC

Based on data contained in the ITE Trip Generation Manual, 11th Edition, 2021, the land uses are estimated to generate/attract 5,654 trip ends during the PM peak hour with 3,304 inbound and 2,350 outbound, as shown in Table A-2.

Given the development is to consist of residential, office and retail land uses, there is a potential for trips to originate at one land use within the project and have a destination at



another use within the project – internal capture. The internal capture was based on the data contained in the ITE Trip Generation Handbook, 3rd Edition (NCHRP 684).

In addition, studies contained in the ITE Trip Generation Handbook, 11th Edition, indicate that a percentage of the retail trips already exist on the adjacent roadways – passerby capture. Therefore, the proposed land uses are estimated to generate/attract approximately 4,906 new external PM peak hour trip ends, with 2,925 inbound and 1,981 outbound, as shown in Table A-2.

PROJECT TRIP DISTRIBUTION

The distribution of the project traffic was estimated based on existing traffic and development in the vicinity of the project and the 2045 Tampa Bay Regional Transportation Model (TBRPM) provided in the Appendix of this report.

Figures 2 and 2A illustrates the assignment of the PM peak hour project trip ends on the adjacent transportation network.

ADJACENT ROADWAYS

As stated previously, the project is located south of Cortez Boulevard (SR 50) Road and east of I-75, in Hernando County, Florida. Cortez Boulevard (SR 50) is currently under construction as a six (6)/four (4) lane divided roadway in the vicinity of the project.

In addition, as part of SR 50 widening, Sherman Hills Boulevard will be realigned with a full median opening at SR 50 and aligned with the project access to be located south of



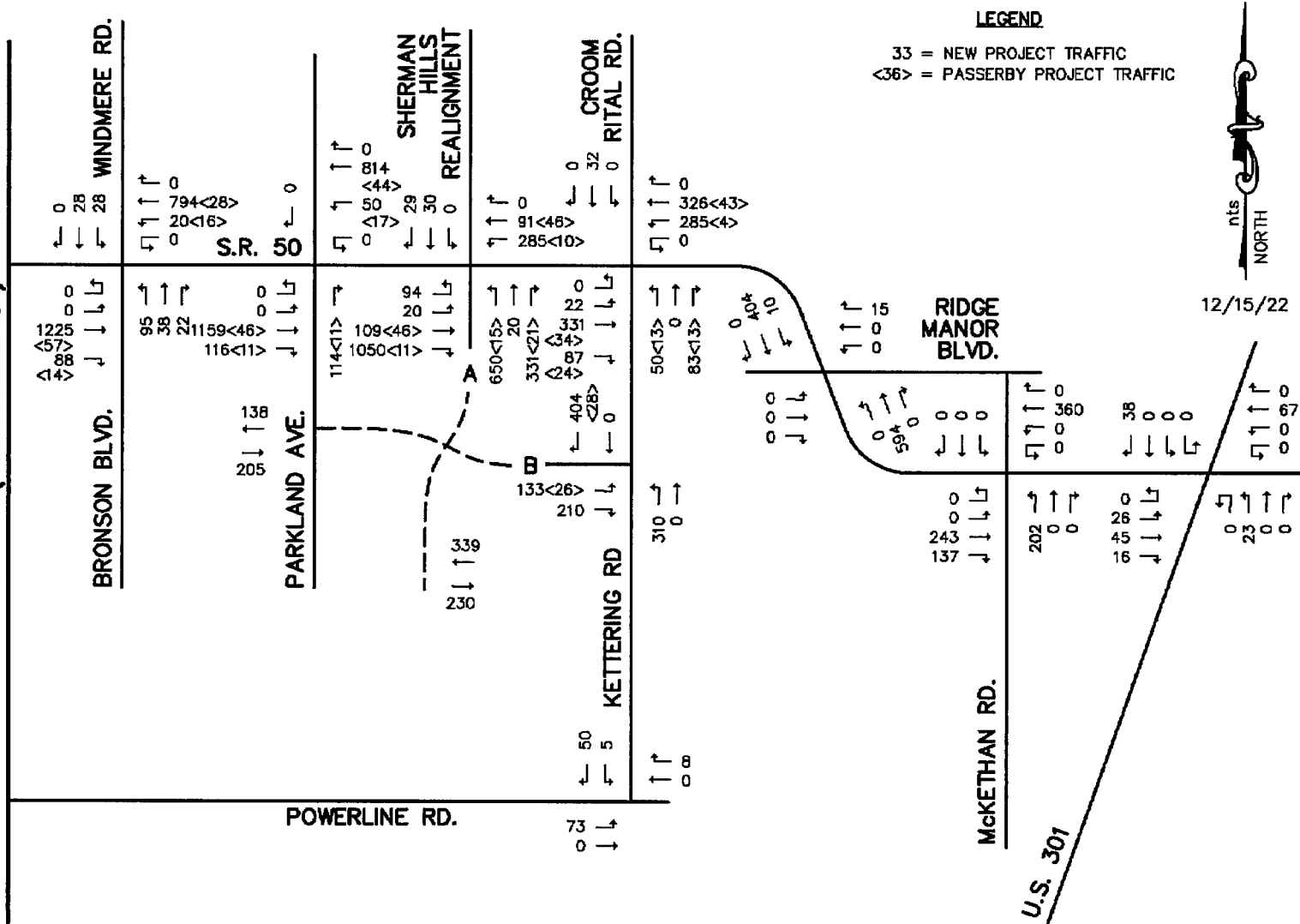
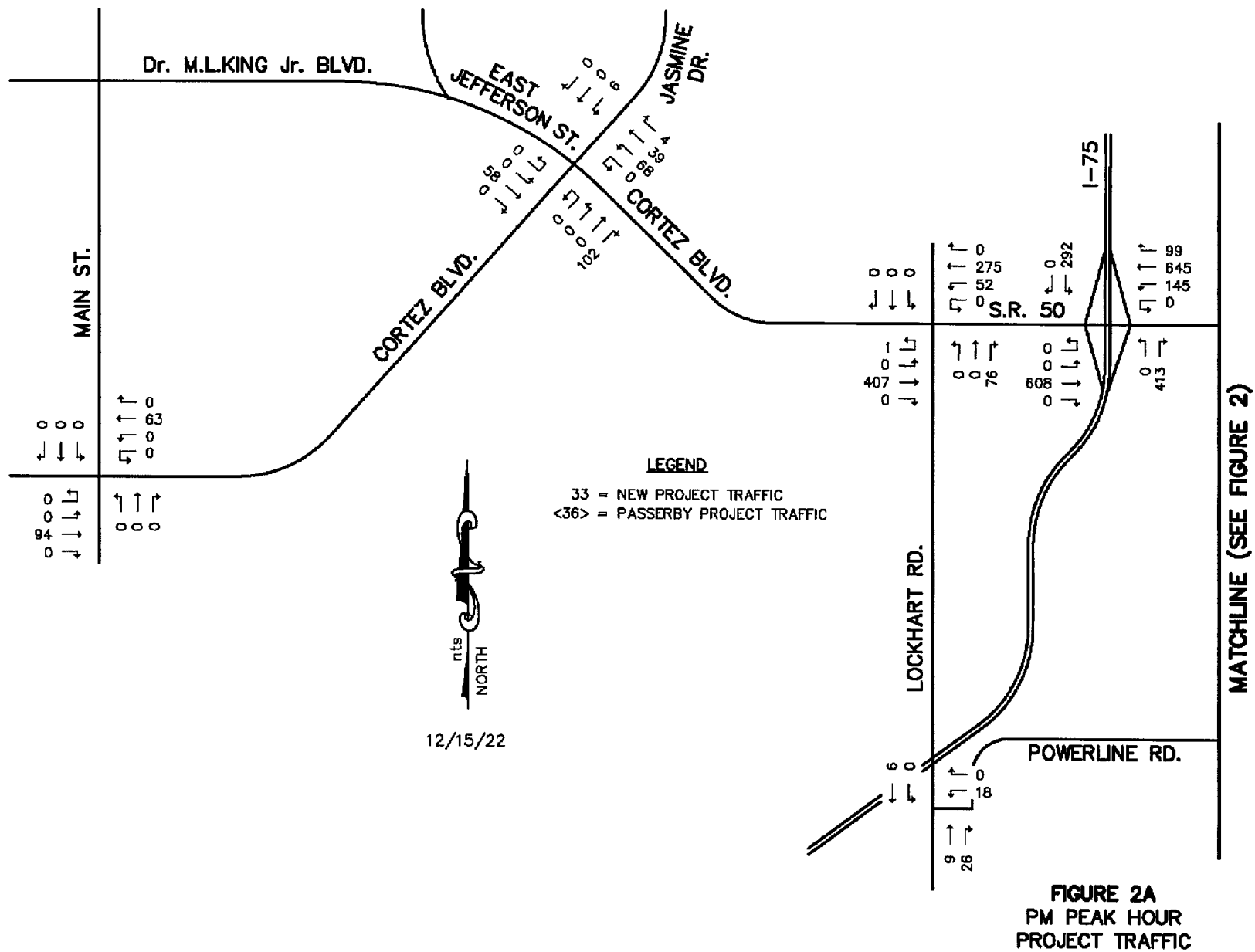


FIGURE 2
PM PEAK HOUR
PROJECT TRAFFIC



SR 50. The existing Sherman Hills Boulevard full access to SR 50 will be modified to right-in/right-out.

According to the Hernando County CIP or FDOT work Program, there are no other capacity adding improvements budgeted within the study network.

STUDY AREA

The study network includes those roadways in which the PM peak hour project traffic consumes 5% of the peak hour adopted Level of Service capacity for the roadways within the vicinity of the project.

Based on the results shown in Table 3, the study network will include the following roadways:

- SR 50/US 98 (Cortez Blvd)
Jasmine Drive to Treiman Boulevard (US 301)
- SR 50/US 98 (Cortez Blvd)
Main Street to Jefferson Street
- Kettering Road
Cortez Boulevard to Powerline Road
- Lockhart Road
I-75 to Cortez Boulevard
- McKethan Road
Cortez Boulevard to Pasco County Line





TABLE 3
STUDY NETWORK

<u>Roadway Link</u>	<u>Geomtry</u>	<u>LOS Standard / Area Type</u>	<u>LOS Capacity(1)</u>	<u>% Project Traffic</u>	<u>PM Peak Hour Project Traffic</u>	<u>% LOS Consumed</u>	<u>Study Network</u>
<u>SR 50 / US 98 (Cortez Blvd)</u>							
Jasmine Dr to Spring Lake Hwy	4LD	C/U	3,420	5.8%	284	8.3%	YES
Spring Lake Hwy to Lockhart Rd	4LD	C/U	3,420	13.9%	682	19.9%	YES
Lockhart Rd to I-75 (SR93) Frontage (W)	6LD	C/U	5,250	17.2%	844	16.1%	YES
I-75 (SR93) Frontage (W) to I-75 SB Ramps	6LD	C/U	5,250	20.8%	1,020	19.4%	YES
I-75 NB Ramps to Windmere Rd	6LD	C/U	5,250	44.9%	2,203	42.0%	YES
Windmere Rd to Parkland Ave	6LD	C/U	5,250	55.8%	2,738	52.2%	YES
Parkland Ave to Kettering Rd	6LD	C/U	5,250	14.3%	702	13.4%	YES
Kettering Rd to Ridge Manor Blvd	6LD	C/U	5,250	20.9%	1,025	19.5%	YES
Ridge Manor Blvd to McKethan Rd (US98/SR700)	4LD	C/U	3,420	20.3%	996	29.1%	YES
McKethan Rd (US98/SR700) to Treiman Blvd (US301/SR35)	4LD	C/U	3,420	12.3%	603	17.6%	YES
Treiman Blvd (US301/SR35) to Burwell Rd	4LD	C/U	3,420	2.3%	113	3.3%	NO
<u>SR 50 / US 98 (Cortez Blvd)</u>							
West Jefferson St to Broad St (US41/SR45)	4LD	C/U	3,420	0.8%	39	1.1%	NO
Broad St (US41/SR45) to Main St	4LD	C/U	3,420	3.2%	157	4.6%	NO
Main St to East Jefferson St (SR50)	4LD	C/U	3,420	3.5%	172	5.0%	YES
<u>KETTERING RD</u>							
Cortez Blvd (SR50) to Cracker Crossing	2LU	D/U	1,197	11.2%	549	45.9%	YES
Cracker Crossing to Powerline Rd	2LU	D/U	1,197	12.4%	608	50.8%	YES
<u>Lockhart Rd</u>							
I-75 (SR93) to Cortez Blvd (SR50)	2LU	D/U	2,180	2.6%	128	5.9%	YES
<u>McKethan Rd (US98/SR700)</u>							
Pasco County Line to Cortez Blvd (SR50)	2LU	C/U	1,620	6.9%	338	20.9%	YES
<u>Treiman Blvd (US301/SR35)</u>							
Pasco County Line to Cortez Blvd(SR 50)	2 LU	C/U	1,620	0.8%	39	2.4%	NO
Cortez Blvd(SR 50) to Ridge Manor Blvd	2 LU	C/U	1,620	1.3%	64	4.0%	NO
Ridge Manor Blvd to Sumter County Line	2 LU	C/U	1,620	1.3%	64	4.0%	NO
<u>Jefferson St (SR 50A)</u>							
Cortez Blvd to MLK	2 LU	C/U	1,510	2.0%	98	6.5%	YES
MLK to N. Broad St	2 LU	C/U	1,510	1.5%	74	4.9%	NO
N. Broad St to Main St	2 O	C/U	786	0.6%	29	3.7%	NO
<u>Powerline Rd</u>							
Kettering Rd to Lockhart Rd	2LU	C/U	1,620	2.5%	123	7.6%	YES
<u>MLK</u>							
Jefferson St to Main St	2LU	C/U	594	0.4%	20	3.4%	NO
<u>Main St</u>							
Cortez Blvd to MLK	2LU	D/U	1,197	0.0%	0	0.0%	NO
MLK to Broad St	2LU	D/U	1,197	0.3%	15	1.2%	NO

(1) Based on FDOT 202 Generalized Capacity Tables.

- Jefferson Street (SR 50A)
Cortez Boulevard to Martin Luther King Jr.
- Powerline Road
Kettering Road to Lockhart Road

BUILDOUT

Buildout of the project is anticipated to be 2035.

BACKGROUND TRAFFIC

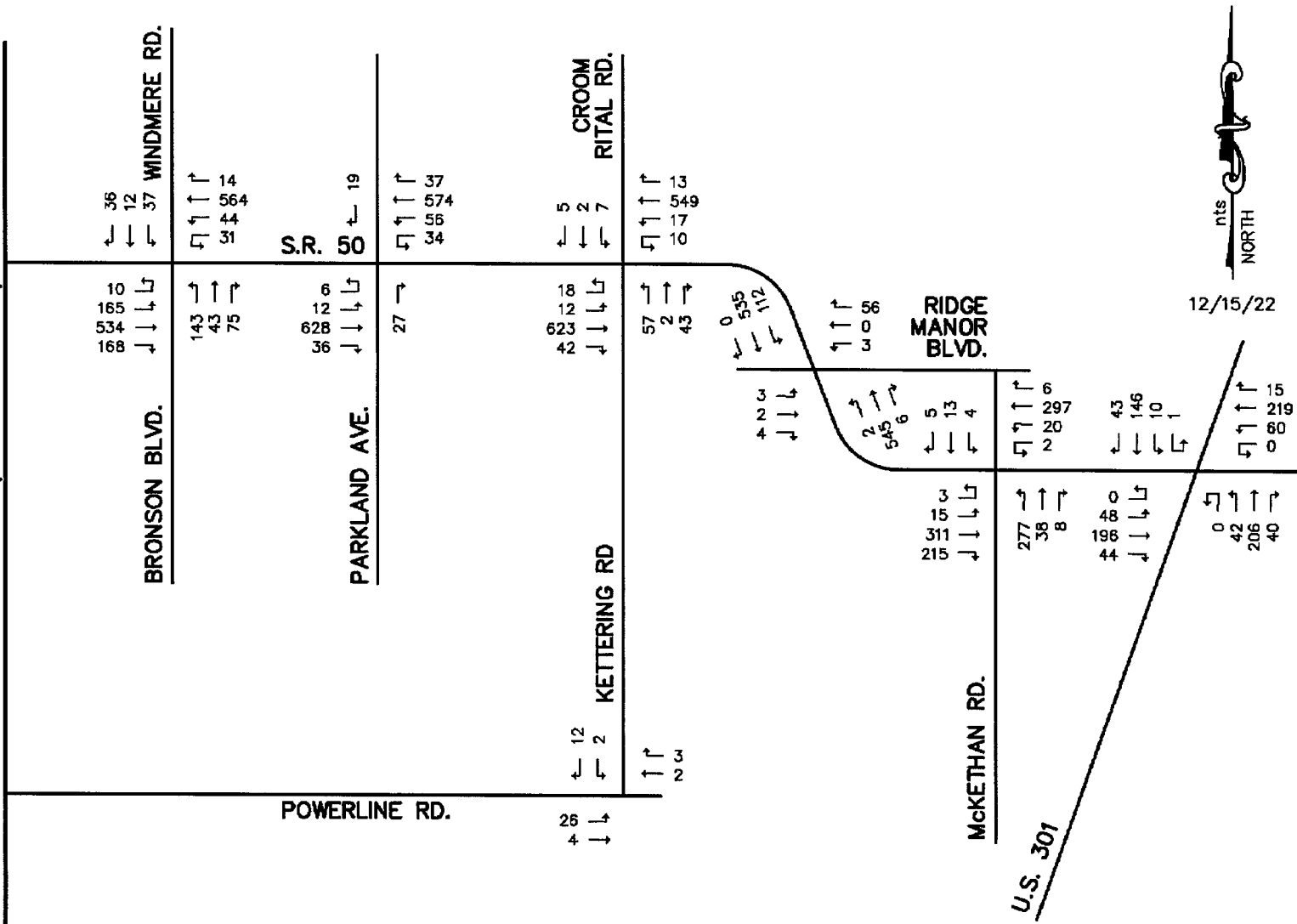
The 2035 background traffic utilized in this analysis were calculated as follows:

- 1) PM (4:00 to 6:00) peak hour turning movement counts were conducted at the intersections within the study network which are as follows:
 - SR 50 (Cortez Boulevard) and East Jefferson Street
 - SR 50 (Cortez Boulevard) and Lockhart Road
 - SR 50 (Cortez Boulevard) and I-75 Ramps
 - SR 50 (Cortez Boulevard) and Windmere Road
 - SR 50 (Cortez Boulevard) and Parkland Avenue
 - SR 50 (Cortez Boulevard) and Kettering Road
 - SR 50 (Cortez Boulevard) and Ridge Manor Boulevard
 - SR 50 (Cortez Boulevard) and McKethan Road
 - SR 50 (Cortez Boulevard) and US 301
 - SR 50 (Cortez Boulevard) and Main Street
 - Kettering Road and Powerline Road
 - Powerline Road and Lockhart Road





MATCHLINE (SEE FIGURE 3A)



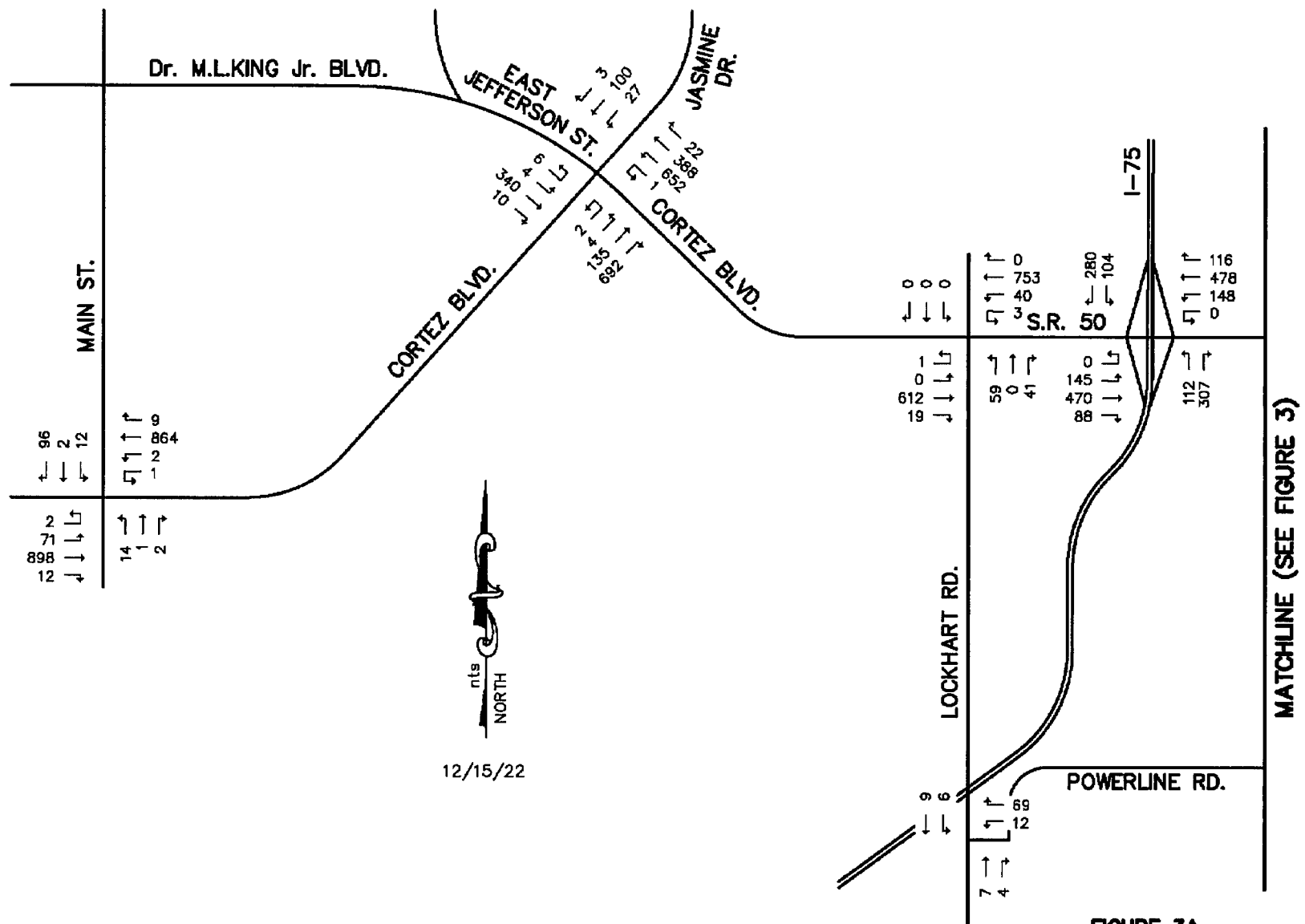


FIGURE 3A
PM PEAK HOUR
EXISTING TRAFFIC

Figures 3 and 3A illustrates the existing traffic.

- 1) The existing counts were adjusted to the peak season based on the 2021 FDOT Peak Season Adjustment Factors for Hernando County.

Figures 4 and 4A illustrates the peak season traffic.

- 2) The peak season traffic was increased by the annual growth rate for each segment contained in the Hernando County Tier I spreadsheet.
- 3) The traffic generated by the following proposed developments along Kettering Road was added to #3:
 - a. Statewide Logistics Center
 - b. Benton Hill Estates
 - c. Kettering Industrial
- 4) The traffic volume at the intersection of realigned Sherman Hills Boulevard and SR 50 were estimated based on existing and future development in the vicinity of the project and added to #3.

Figure 5 and 5A illustrates the 2035 background traffic and Figures 6 and 6A illustrates the 2035 background plus project traffic.

ARTERIAL ANALYSIS

An arterial analysis was conducted for the roadways within the study network for the following scenarios:





MATCHLINE (SEE FIGURE 4A)

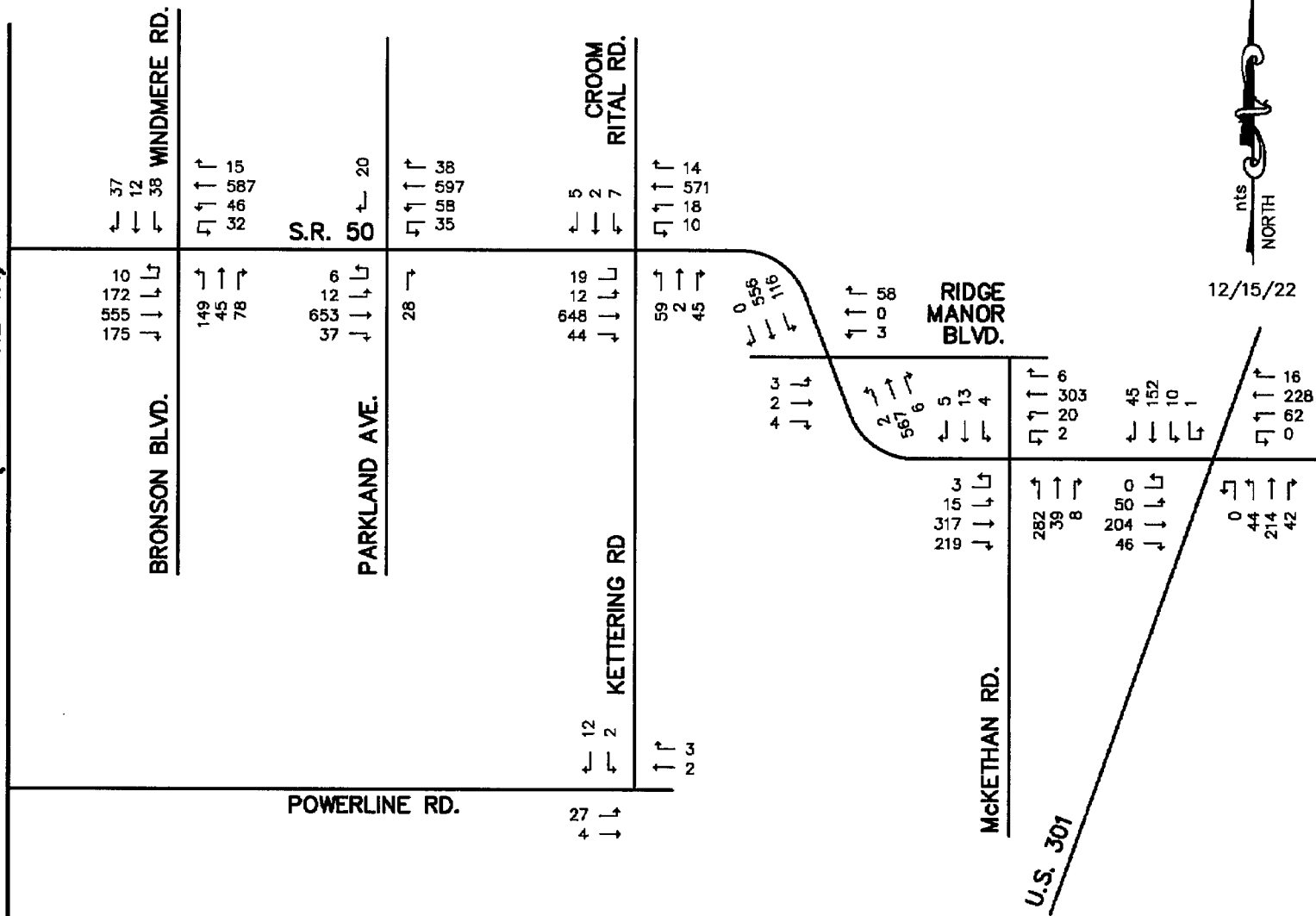


FIGURE 4
PM PEAK HOUR
PEAK SEASON TRAFFIC

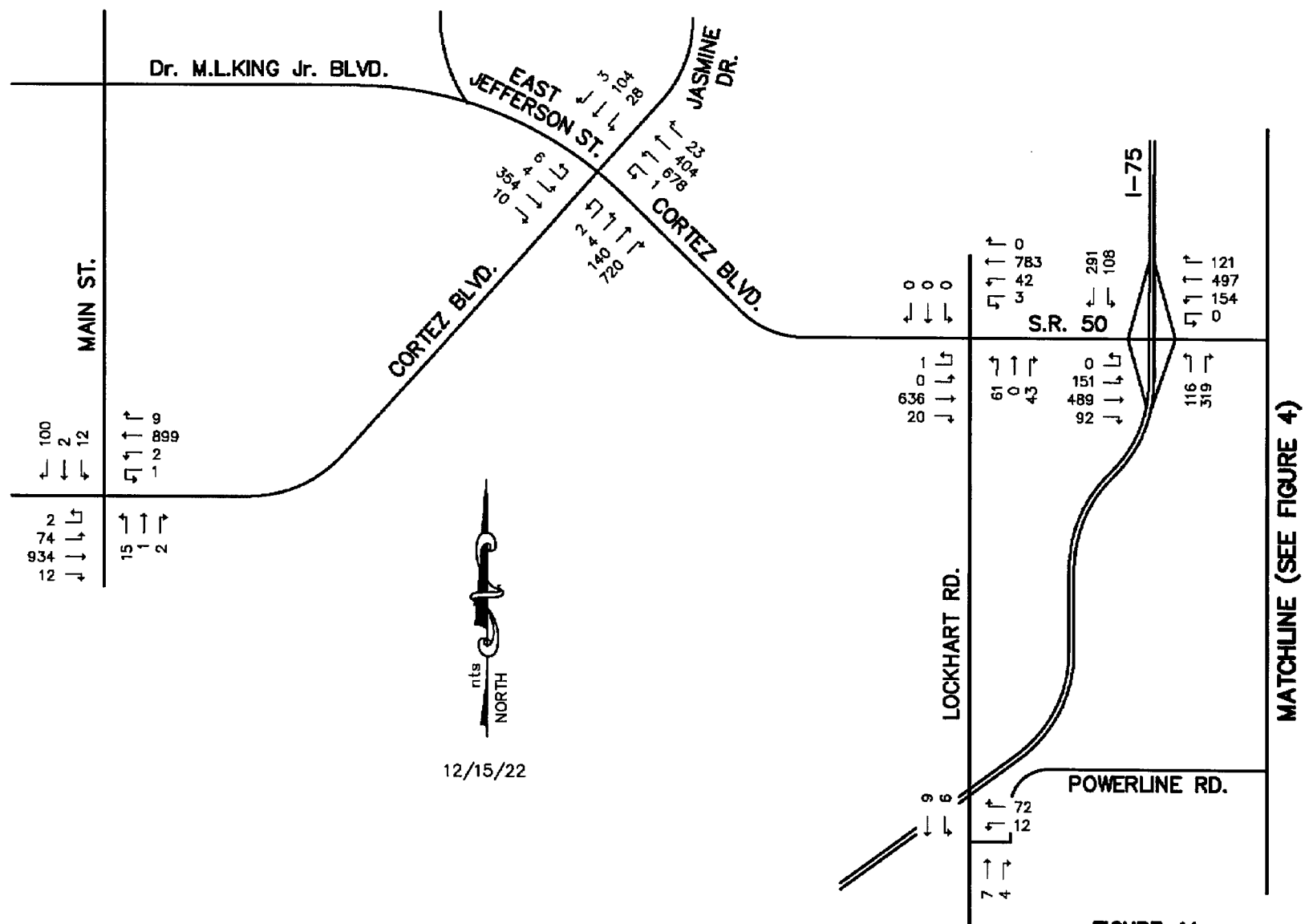


FIGURE 4A
PM PEAK HOUR
PEAK SEASON TRAFFIC

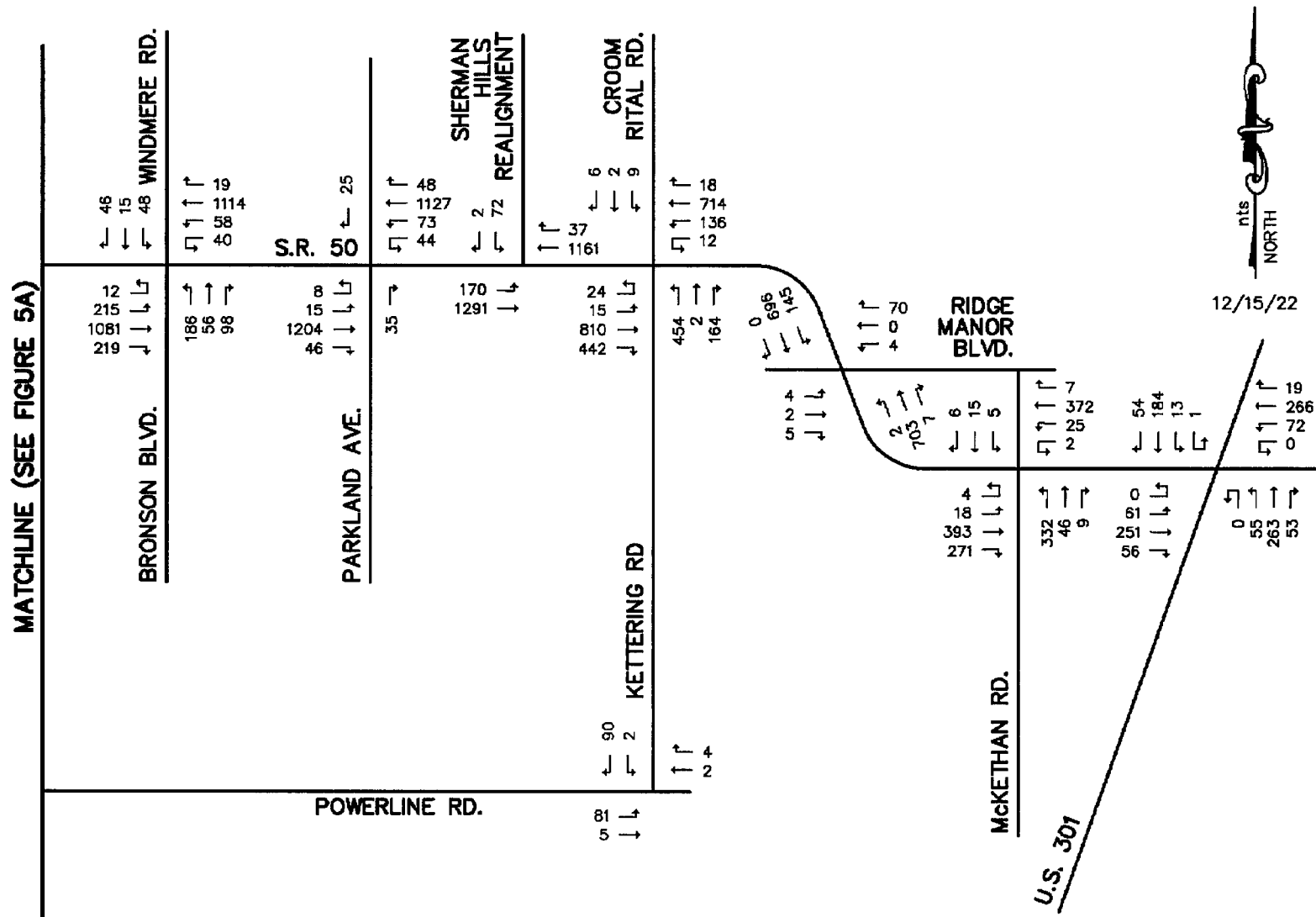
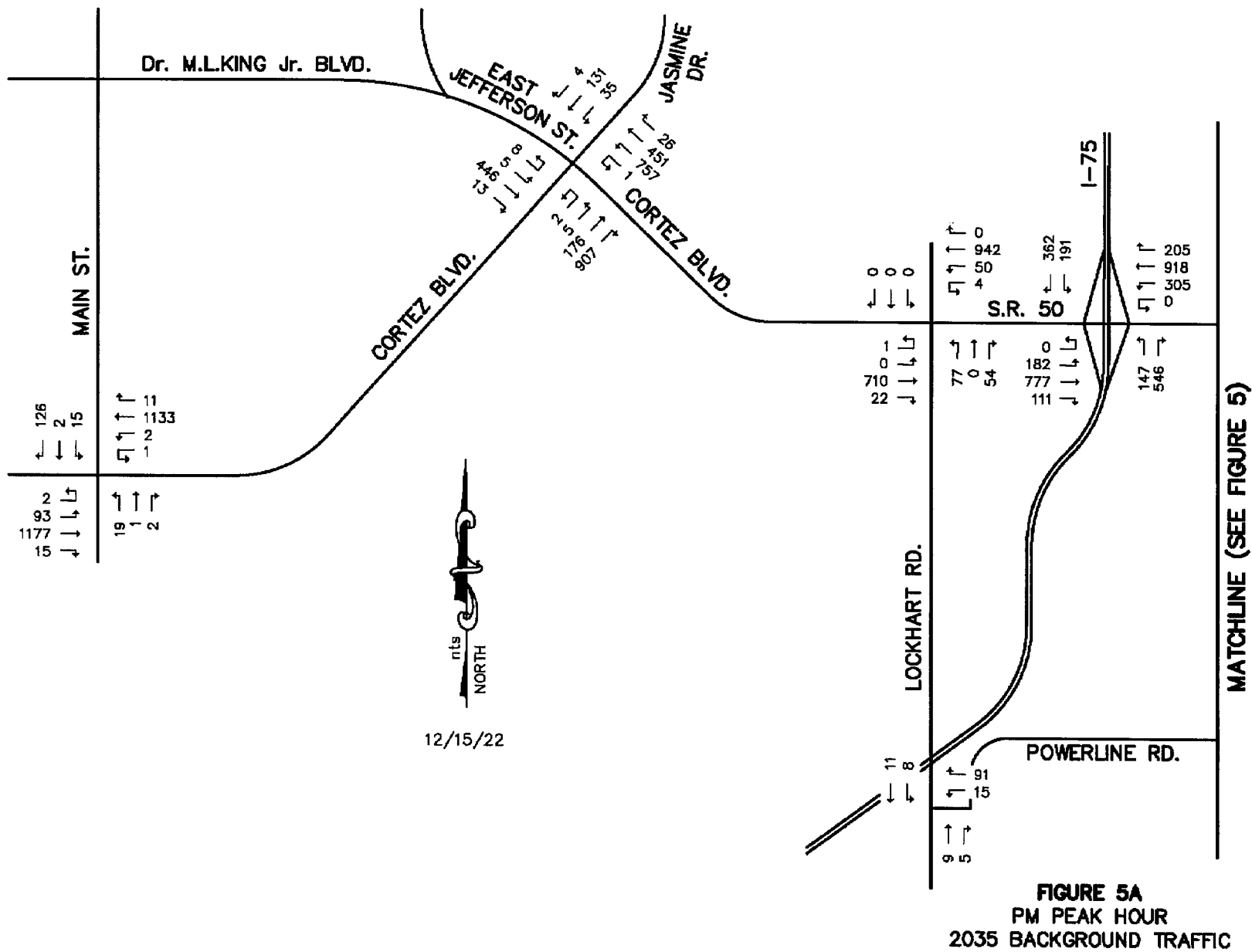


FIGURE 5
PM PEAK HOUR
2035 BACKGROUND TRAFFIC



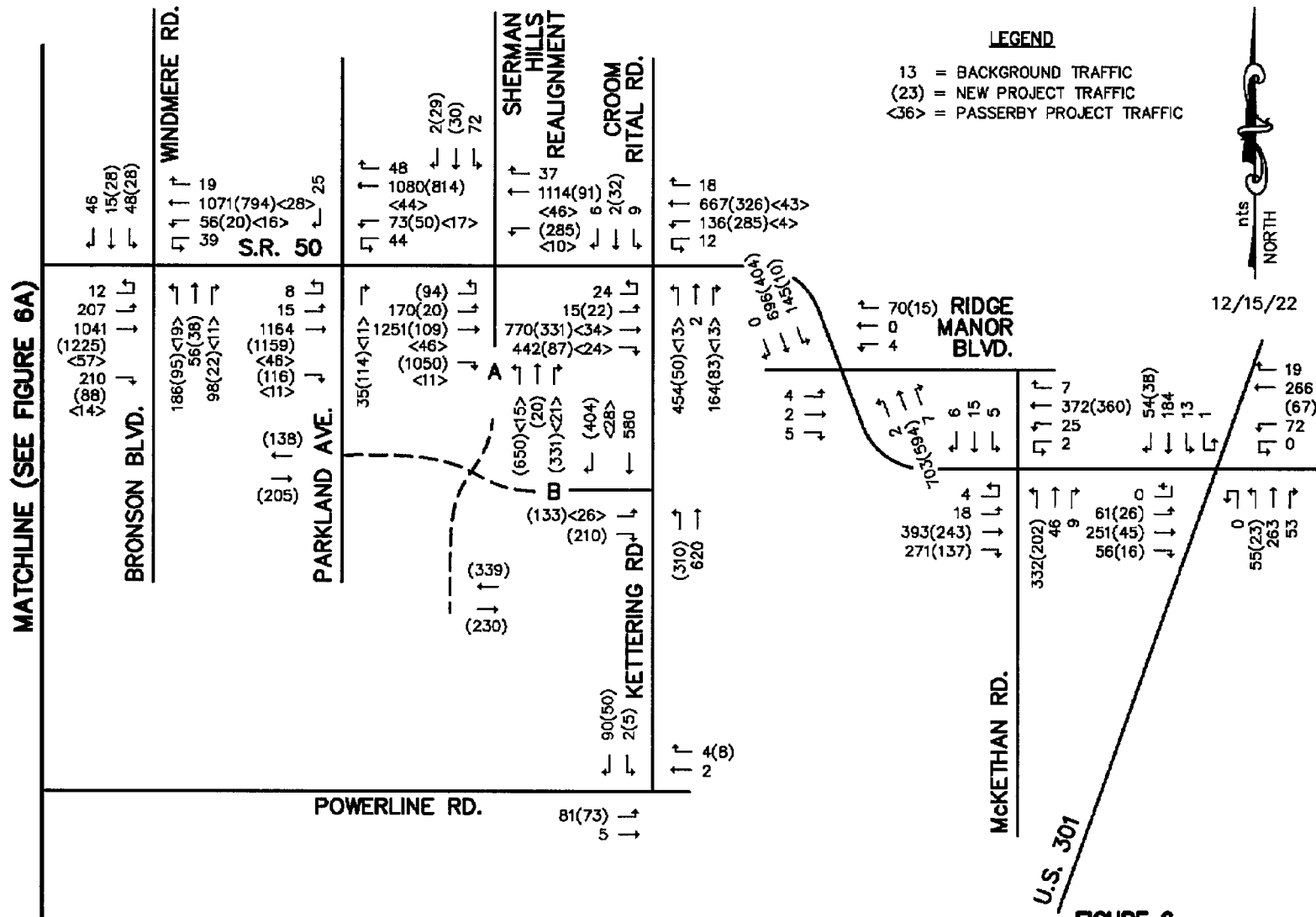
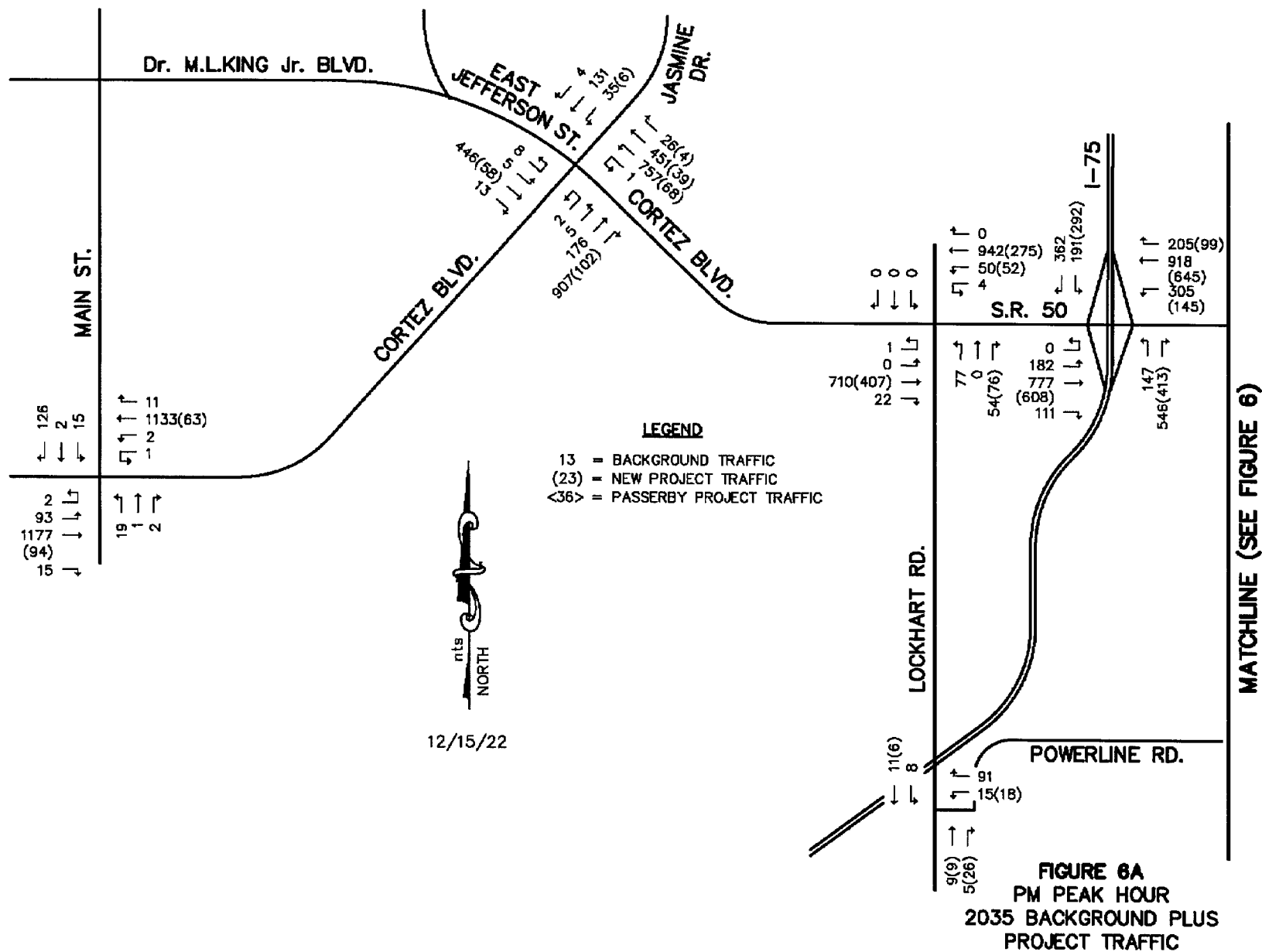


FIGURE 6
PM PEAK HOUR
2035 BACKGROUND PLUS
PROJECT TRAFFIC



- Peak season traffic
- 2035 Background traffic with existing/budgeted improvements
- 2035 Background traffic with the required improvements
- 2035 Background plus project traffic with background improvements
- 2035 Background plus project traffic with additional improvements required beyond the background improvements

Peak Season Traffic Condition

Table 4 provides the arterial analysis with the peak season traffic and with the existing/budgeted improvements. Based on the results, all roadway segments within the study area should operate within the acceptable level of service with peak season traffic, as shown in Table 4.

Background Traffic Condition

Table 4 provides the results of the arterial analysis with the 2035 background traffic and with existing/budgeted improvements. Based on the results, all roadway segments within the study area should operate within the acceptable level of service with the 2035 background traffic, except for the segment of Kettering Road from project access to SR 50, as shown in Table 4.

Background Traffic with Required Improvements

Table 4 provides arterial analysis with the background traffic and with improvements required for background traffic. Based on the results, all roadway segments within the study area should operate within the acceptable level of service with background traffic, as shown in Table 4.





TABLE 4
ARTERIAL ANALYSIS (PM PEAK HOUR)
EXISTING AND BUDGETED GEOMETRY

Segment	From	To	No of Lanes	LOS STD	Capacity(1)	Peak Season Traffic (2)	Remaining Capacity	2035 Background Traffic (2)	Remaining Capacity	Required Improvements	Capacity(1)	Remaining Capacity	2035 Background Plus Project Traffic (2)	Remaining Capacity
SR 50	Main St	Jasmine Dr	4LD	C	3,420	1,777	1,643	2,237	1,183	None	3,420	1,183	2,402	1,018
	Jasmine Dr	Lockhart Rd	4LD	C	3,420	1,763	1,657	1,968	1,452	None	3,420	1,452	2,486	934
	Lockhart Rd	I-75	6LD	C	5,250	1,560	3,690	2,066	3,184	None	5,250	3,184	3,001	2,249
	I-75	Windmere Rd	6LD	C	5,250	1,684	3,566	2,955	2,295	None	5,250	2,295	5,091	159
	Windmere Rd	Parkland Ave	6LD	C	5,250	1,388	3,862	2,504	2,746	None	5,250	2,746	4,469	781
	Parkland Ave	Sherman Hills Realignment/Access	6LD	C	5,250	1,451	3,799	2,753	2,497	None	5,250	2,497	4,921	329
	Sherman Hills Realignment/Access	Kettering Rd	6LD	C	5,250	1,451	3,799	2,489	2,761	None	5,250	2,761	3,332	1,918
	Kettering Rd	Ridge Manor Blvd	6LD	C	5,250	1,285	3,965	1,721	3,529	None	5,250	3,529	2,746	2,504
	Ridge Manor Blvd	McKeaton Rd	4LD	C	3,420	1,129	2,291	1,398	2,022	None	3,420	2,022	2,372	1,048
	McKeaton Rd	US 301	4LD	C	3,420	631	2,789	774	2,646	None	3,420	2,646	1,221	2,199
Kettering Rd	Powerline Rd	Project Access	2LU	D	1,197	120	1,077	712	485	None	1,197	485	1,077	120
	Project Access	SR 50	2LU	D	1,197	120	1,077	1,200	-3	4LD	3,222	2,022	1,791	1,431
Lockhart Rd	Powerline Rd	SR 50	2LU	D	2,180	119	2,061	150	2,030	None	2,180	2,030	232	1,948
McKeaton Rd	Pasco Co Line	SR 50	2LU	C	1,620	583	1,037	700	920	None	1,620	920	1,039	581
E. Jefferson St	SR 50	MLK Blvd	2LU	C	1,510	785	725	932	578	None	1,510	578	1,029	481
Powerline Rd	Kettering Rd	Lockhart Rd	2LU	C	1,620	115	1,505	192	1,428	None	1,620	1,428	283	1,337

1) Based on FDOT Capacity Tables and Tier Spreadsheet
2) Based on Figures 2, 2A, 5.5A, 6, 6A, of this Report

Background Plus Project Traffic Condition

Table 4 provides the results of the arterial analysis with the 2035 background plus project traffic and required improvements for background traffic. Based on the results of the analysis, all roadway segments should operate within acceptable level of service with the 2035 background plus project traffic, as shown in Table 4.

INTERSECTION ANALYSIS

A capacity analysis was conducted for the PM peak hours at the following intersections:

- SR 50 (Cortez Boulevard) and East Jefferson Street
- SR 50 (Cortez Boulevard) and Lockhart Road
- SR 50 (Cortez Boulevard) and I-75 Ramps
- SR 50 (Cortez Boulevard) and Windmere Road
- SR 50 (Cortez Boulevard) and Parkland Avenue
- SR 50 (Cortez Boulevard) and Sherman Hills Boulevard Realignment/Project Access
- SR 50 (Cortez Boulevard) and Kettering Road
- SR 50 (Cortez Boulevard) and Ridge Manor Boulevard
- SR 50 (Cortez Boulevard) and McKethan Road
- SR 50 (Cortez Boulevard) and US 301
- SR 50 (Cortez Boulevard) and Main Street
- Kettering Road and Powerline Road
- Powerline Road and Lockhart Road

These calculations were performed utilizing the methodology described in Chapter 18 and 19, Signalized and Unsignalized Intersections of Transportation Research Board



(TRB) Special Report, the 2010 Highway Capacity Manual, for unsignalized intersections and SYNCHRO for signalized intersections.

This section describes the intersection analysis with the three analysis scenarios; existing peak season, background, and background plus project traffic.

Existing Peak Season Traffic Condition

Table 5 provides the results of the intersection analysis with peak season traffic. As shown in Table 5, all intersections are expected to meet the level of service and V/C criteria during the PM peak hour with the existing peak season traffic and the budgeted improvements.

Background Traffic

Table 6 provides the results of the intersection analysis with 2035 background traffic and with budgeted improvements. In addition, Table 6 provides the required improvements for each intersection that exceeds level of service or V/C ratio of 1.0.

Table 7 provides a summary of the analysis with the required improvements due to the background traffic.

Background Plus Project Traffic

Table 8 provides a summary of the intersection analysis with the 2035 background plus project traffic with the improvements required for the background traffic. In addition, the Table 8 provides the additional improvements required due to the project traffic.



TABLE 5
ESTIMATED INTERSECTION LEVEL OF SERVICE
EXISTING AND BUDGETED IMPROVEMENTS

Intersection	Intersection Control	Overall LOS (1)	Direction	PM Peak Hour Peak Season Traffic (V/C)		
				Left	Through	Right
Cortez Blvd and Jefferson St	Signalized	B	EB	0.08	0.23	0.01
			WB	0.77	0.16	0.02
			NB	0.04	0.57	0.47
			SB	0.22	0.43	0.43
Cortez Blvd and Lockhart Rd	Unsignalized	-	EB	0.0	*	*
			WB	0.05	*	*
			NB	0.24	0.07	0.07
Cortez Blvd and I-75 Ramps	Signalized	C	EB	0.43	0.55	0.18
			WB	0.43	0.55	0.23
			NB	0.21	-	0.54
			SB	0.20	-	0.51
Cortez Blvd and Windermere Rd	Signalized	B	EB	0.40	0.33	0.27
			WB	0.19	0.33	0.33
			NB	0.55	0.31	0.31
			SB	0.15	0.14	0.14
Cortez Blvd and Parkland Avenue	Unsignalized	-	EB	0.03	*	*
			WB	0.17	*	*
			NB	-	-	0.05
			SB	-	-	0.04
Cortez Blvd and Sherman Hills Blvd Realignment	Unsignalized	-	EB			
			WB			
			NB			
			SB			
Cortez Blvd and Kettering Rd	Signalized	B	EB	0.16	0.22	0.05
			WB	0.15	0.20	0.02
			NB	0.31	0.31	0.13
			SB	0.06	0.06	0.06
Cortez Blvd and Ridge Manor Blvd	Unsignalized	-	EB	0.03	0.03	0.03
			WB	0.11	0.11	0.11
			NB	0.0	*	*
			SB	0.20	*	*
Cortez Blvd and McKethan Rd	Signalized	C	EB	0.04	0.18	0.32
			WB	0.07	0.25	0.01
			NB	0.28	0.27	0.01
			SB	0.01	0.06	0.06
Cortez Blvd and US 301	Signalized	C	EB	0.10	0.17	0.08
			WB	0.12	0.20	0.20
			NB	0.14	0.52	0.06
			SB	0.04	0.51	0.08
Cortez Blvd and Main St	Signalized	A	EB	0.16	0.37	0.01
			WB	0.01	0.40	0.01
			NB	0.11	0.02	0.02
			SB	0.08	0.39	0.39
Kettering Rd and Powerline Rd	Unsignalized	-	EB	0.03	0.03	-
			SB	0.03	-	0.03
Powerline Rd and Lockhart Rd	Unsignalized	-	WB	0.17	-	0.17
			SB	0.01	0.01	-

(1) Not calculated for unsignalized intersections.

(2) *Free flow, V/C not calculated.



TABLE 6

ESTIMATED INTERSECTION LEVEL OF SERVICE
EXISTING AND BUDGETED IMPROVEMENTS

Intersection	Intersection Control	Overall LOS (1)	Direction	PM Peak Hour 2035 Background Traffic (V/C)			Required Improvements
				Left	Through	Right	
Cortez Blvd and Jefferson St	Signalized	B	EB	0.11	0.31	0.02	-
			WB	0.79	0.18	0.02	
			NB	0.04	0.63	0.60	
			SB	0.29	0.48	0.48	
Cortez Blvd and Lockhart Rd	Unsignalized	-	EB	0.0	*	*	-
			WB	0.07	*	*	
			NB	0.36	0.09	0.09	
Cortez Blvd and I-75 Ramps	Signalized	C	EB	0.58	0.72	0.20	-
			WB	0.68	0.72	0.33	
			NB	0.30	-	0.76	
			SB	0.39	-	0.57	
Cortez Blvd and Windermere Rd	Signalized	C	EB	0.59	0.54	0.29	-
			WB	0.32	0.54	0.54	
			NB	0.64	0.36	0.36	
			SB	0.18	0.15	0.15	
Cortez Blvd and Parkland Avenue	Unsignalized	-	EB	0.07	*	*	-
			WB	0.40	*	*	
			NB	-	-	0.10	
			SB	-	-	0.07	
Cortez Blvd and Sherman Hills Blvd Realignment	Unsignalized	-	EB	0.62	*	*	Signalize
			WB	0.00	*	*	
			SB	1.16	-	0.01	
Cortez Blvd and Kettering Rd	Signalized	C	EB	0.35	0.52	0.56	Dual NBL and Dual WBL
			WB	0.92	0.36	0.02	
			NB	1.05	1.05	0.26	
			SB	0.04	0.04	0.04	
Cortez Blvd and Ridge Manor Blvd	Unsignalized	-	EB	0.06	0.06	0.06	-
			WB	0.16	0.16	0.16	
			NB	0.00	*	*	
			SB	0.29	*	*	
Cortez Blvd and McKethan Rd	Signalized	C	EB	0.05	0.22	0.37	-
			WB	0.08	0.29	0.01	
			NB	0.35	0.33	0.01	
			SB	0.02	0.07	0.07	
Cortez Blvd and US 301	Signalized	C	EB	0.14	0.23	0.10	-
			WB	0.16	0.26	0.26	
			NB	0.16	0.57	0.08	
			SB	0.05	0.54	0.09	
Cortez Blvd and Main St	Signalized	A	EB	0.26	0.47	0.01	-
			WB	0.01	0.53	0.01	
			NB	0.14	0.02	0.02	
			SB	0.10	0.45	0.45	
Kettering Rd and Powerline Rd	Unsignalized	-	EB	0.10	0.10	-	-
			SB	0.17	-	0.17	
Powerline Rd and Lockhart Rd	Unsignalized	-	WB	0.21	-	0.21	-
			SB	0.01	0.01	-	

(1) Not calculated for unsignalized intersections.

(2) *Free flow, V/C not calculated.





TABLE 7
ESTIMATED INTERSECTION LEVEL OF SERVICE
REQUIRED IMPROVEMENTS FOR BACKGROUND TRAFFIC

<u>Intersection</u>	<u>Intersection Control</u>	<u>Overall LOS</u>	<u>Direction</u>	PM Peak Hour 2035 Background Traffic (V/C)		
				<u>Left</u>	<u>Through</u>	<u>Right</u>
Cortez Blvd and Sherman Hills Blvd Realignment	Signalized	B	EB	0.53	0.40	-
			WB	-	0.64	0.06
			SB	0.34	-	0.01
Cortez Blvd and Kettering Rd	Signalized	C	EB	0.30	0.45	0.53
			WB	0.50	0.32	0.02
			NB	0.74	0.0	0.32
			SB	0.09	-	0.09

TABLE 8

ESTIMATED INTERSECTION LEVEL OF SERVICE
REQUIRED IMPROVEMENTS FOR BACKGROUND TRAFFIC PLUS PROJECT TRAFFIC

Intersection	Intersection Control	Overall LOS (1)	Direction	PM Peak Hour 2035 Background Plus Project Traffic (V/C)			Required Improvements
				Left	Through	Right	
Cortez Blvd and Jefferson St	Signalized	B	EB	0.11	0.37	0.02	
			WB	0.80	0.20	0.03	
			NB	0.04	0.63	0.66	
			SB	0.34	0.48	0.48	
Cortez Blvd and Lockhart Rd	Unsignalized	-	EB	0.00	-	-	
			WB	0.21	-	-	
			NB	0.70	0.30	0.30	
Cortez Blvd and I-75 Ramps	Signalized	F	EB	0.85	1.13	0.18	Additional EB shared through/right, WB through/right and NBR
			WB	1.46	1.14	0.48	
			NB	0.33	-	1.33	
			SB	1.08	-	0.47	
Cortez Blvd and Windermere Rd	Signalized	D	EB	0.78	0.98	0.36	
			WB	0.77	0.63	0.63	
			NB	0.97	0.50	0.50	
			SB	0.34	0.20	0.20	
Cortez Blvd and Parkland Avenue	Unsignalized	-	EB	0.19	-	-	
			WB	(1)	-	-	
			NB	-	-	1.24	
			SB	-	-	0.14	
Cortez Blvd and Sherman Hills Blvd Realignment/ Project Access A	Signalized	-	EB	-	-	-	Dual NBL, NBT, NBR and Dual WBL
			WB	-	-	-	
			NB	-	-	-	
			SB	-	-	-	
Cortez Blvd and Kettering Rd	Signalized	C	EB	0.45	0.76	0.65	
			WB	0.80	0.50	0.02	
			NB	0.84	0.0	0.40	
			SB	0.36	0.36	0.36	
Cortez Blvd and Ridge Manor Blvd	Unsignalized	-	EB	0.20	0.20	0.20	
			WB	0.32	0.32	0.32	
			NB	0.01	-	-	
			SB	0.61	-	-	
Cortez Blvd and McKethan Rd	Signalized	C	EB	0.08	0.35	0.50	
			WB	0.10	0.53	0.01	
			NB	0.53	0.52	0.01	
			SB	0.02	0.07	0.07	
Cortez Blvd and US 301	Signalized	C	EB	0.19	0.23	0.11	
			WB	0.15	0.28	0.28	
			NB	0.27	0.63	0.09	
			SB	0.06	0.62	0.17	
Cortez Blvd and Main St	Signalized	A	EB	0.27	0.51	0.01	
			WB	0.01	0.56	0.01	
			NB	0.14	0.02	0.02	
			SB	0.10	0.45	0.45	
Kettering Rd and Powerline Rd	Unsignalized	-	EB	0.20	0.20	-	
			SB	0.30	-	0.30	
Powerline Rd and Lockhart Rd	Unsignalized	-	WB	0.27	-	0.27	
			SB	0.01	0.01	-	

(1) Not calculated for unsignalized intersections.

(2) *Free flow, V/C not calculated.





TABLE 9
ESTIMATED INTERSECTION LEVEL OF SERVICE
REQUIRED IMPROVEMENTS FOR PROJECT TRAFFIC

<u>Intersection</u>	<u>Intersection Control</u>	<u>Overall LOS</u>	<u>Direction</u>	PM Peak Hour 2035 Background Plus Project Traffic (V/C)		
				<u>Left</u>	<u>Through</u>	<u>Right</u>
Cortez Blvd and I-75 Ramps	Signalized	D	EB	0.70	0.94	0.94
			WB	0.81	0.88	0.88
			NB	0.33	-	0.92
			SB	0.35	-	0.63
Cortez Blvd and Sherman Hills Blvd Realignment/Project Access A	Signalized	D	EB	0.95	0.87	0.71
			WB	0.82	0.97	0.07
			NB	0.92	0.03	0.47
			SB	0.56	0.33	0.33

Table 9 provides the summary of the intersection analysis with the additional improvements required due to the project traffic.

CONCLUSION

Based on the results of the analysis, all roadway segments within the study area should operate within acceptable level of service with 2035 background traffic plus the addition of project traffic and required improvements for the background traffic, as shown in Table 4.

Based on the results of the intersection analysis the improvements required due to background traffic were identified in Table 6. Table 7 illustrates that all intersections should operate within acceptable level of service and V/C criteria with the background traffic and with the improvements identified due to background traffic. Consistent with Chapter 2011 – 139, Laws of Florida and Chapter 163.3180 of the Florida Statute as amended by HB 319 improvements required to mitigate backlogged facilities is the responsibility of the local government.

Based on the results of the intersection analysis the improvements required due to project traffic and beyond the improvements required for background traffic were identified in Table 8. Table 9 illustrates the level of service and V/C criteria with the addition of project traffic and with the improvements identified due to project traffic.



PROPORTIONATE SHARE

The following methodology was utilized to determine the project's proportionate share cost of the required improvements for the intersection of Cortez Boulevard and I-75 Ramps. Access improvements were not included in the proportionate share calculations.

1. The following formula was utilized to determine the proportionate share of the required improvements:

$$\text{Proportionate share} = (\text{New Project Traffic/LOS D capacity}) \times (\text{Improvement Cost})$$

Table 10 summarizes the proportionate share cost of the project which totals \$1,380,790.





TABLE 10
INTERSECTION PROPORTIONATE SHARE DETERMINATION

<u>Intersection</u>	<u>Improvement</u>	<u>Improvement Cost (1)</u>	<u>Percentage of LOS D Capacity Consumed by Project Traffic (2)</u>	<u>Proportionate Share</u>
Cortez Blvd and I-75 Ramps	Add EBT/R, WBT/R, NBR	\$4,256,443	32.44%	\$1,380,790

(1) Source: FDOT Roadway Cost Per Centerline Mile, Revised June, 2022 - See Table A-2 in the Appendix.

(2) % Capacity Consumed -See Table A-1 In the Appendix

APPENDIX



APPROVED METHODOLOGY STATEMENT



LINCKS & ASSOCIATES, INC.



DEPARTMENT OF PUBLIC WORKS

Airport • Cemetery • Engineering • Facilities • Flood Control • Land Management • Major • Solid Waste

1525 EAST JEFFERSON STREET • BROOKSVILLE, FLORIDA 34601
P 352.754.4060 F 352.754.4423 W www.HernandoCounty.us

October 21, 2022

Mr. Steven J. Henry, PE
LINCKS & Associates, Inc.
5023 West Laurel Street
Tampa, Florida 33607

SUBJECT: Sunrise Development
Transportation Analysis Methodology Statement

Dear Mr. Henry:

Staff has reviewed your revised Methodology Statement (dated October 19, 2022) for the Sunrise Development project. The methodology statement is in the format shown in the Hernando County guidelines. Staff can accept the methodology with a couple of items that can be done with Analysis.

Distribution – Provide a legible copy of the 2021 FDOT Regional Model.

Analysis Scenario – Add AM Peak Hour to study timeframe.

These comments are not intended to be inclusive of any or all errors or omissions within the subject analysis. It remains the responsibility of the consulting engineer to thoroughly check the analysis and make necessary corrections.

Please provide the Synchro files with the Analysis submittal.

Please contact me with any questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Todd Crosby".

D. Todd Crosby, P.E.
Assistant County Engineer

EL:DTC



Letter to Steven J. Henry, P.E.
October 21, 2022
Subject: Sunrise Development TA Methodology
Page #2

Attachments: Hernando County Facility Design Guideline's sheet IV-18.

cc: Laura A. Borgesi P.E., Traffic Engineer
Kandi McCorkel, Engineering Development Coordinator
File



LINCKS & ASSOCIATES, INC.

October 19, 2022

Todd Crosby, P.E.
Hernando County Department of Public Works
1525 E. Jefferson Street
Brooksville, FL 34601

Re: Project Name: Sunrise Development
Lincks Project No: 21132

Dear Mr. Crosby,

The purpose of this letter is to provide a response to your comments for the above referenced project. The comments and our responses are as follows:

1. Distribution -Add "current" in front of "FDOT Regional Model".

Response:

Comment noted. Methodology is revised to add "current" in front of FDOT Regional Model.

2. Table 2 PM Peak Hour Trip Generation -Why was the "Fitted Curve Equation" not used?

Response:

The Fitted Curve Equation was not used because the proposed number of dwelling units are not within the range of the sample data size used for developing the Fitted Curve Equations. In addition, utilization of the Fitted Curve Equation will yield lower or equal number of trip ends compared to trip ends generated utilizing average rates. The trip ends generated utilizing Fitted Curve Equation are attached to this letter.

3. Background Traffic - Provide the proposed growth rate that will be used.

Response:

The Methodology is revised to include Table 4 illustrating proposed growth rates for each segment with the study area.

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www.Lincks.com Website

4. Site Access- Include the possible signalization for the intersection of Sunrise Boulevard at Cortez Boulevard.

Response:

Comment noted. Intersection analysis at Sunrise Boulevard and Cortez Boulevard, will be provided.

5. Project Distribution - This page can not be read, provide a cleaner sheet. Verify the next page and show it's relevance for this document.

Response:

An electronic copy of the model distribution is included with the Methodology.

6. These comments are not intended to be inclusive of any or all errors or omissions within the subject analysis. It remains the responsibility of the consulting engineer to thoroughly check the analysis and make necessary corrections.

Response:

Comment noted.

7. Please provide the Synchro files with the Analysis submittal.

Response:

Comment noted.

If you have any questions regarding the responses to these comments, please do not hesitate to contact me at shenry@lincks.com or 813-559-9589.

LINCKS & ASSOCIATES, INC.

Steven Henry, PE
President

PM PEAK HOUR TRIPS – FITTED CURVE EQUATION



PERIOD SETTING

Analysis Name :	New Analysis	No :	
Project Name :	Sunrise-Test	City:	
Date:	10/17/2022	Zip/Postal Code:	
State/Province:		Client Name:	
Country:		Edition:	Trip Generation Manual, 11th Ed
Analyst's Name:			

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
210 - Single-Family Detached Housing (General Urban/Suburban)	Dwelling Units	4200 ⁽⁰⁾	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Best Fit (LOG) $\ln(T) = 0.94\ln(X) + 0.27$	2101 63%	1234 37%	3335
221 - Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (General Urban/Suburban)	Dwelling Units	600 ⁽⁰⁾	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Best Fit (LIN) $T = 0.39(X) + 0.34$	143 61%	91 39%	234

(0) indicates size out of range.

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
210 - Single-Family Detached Housing	0 %	2101	0 %	1234
221 - Multifamily Housing (Mid-Rise)	0 %	143	0 %	91

INTERNAL TRIPS

210 - Single-Family Detached Housing				221 - Multifamily Housing (Mid-Rise)			
Exit	1234	Demand Exit:	0 % (0)	Balanced:	0	Demand Entry:	0 % (0)
Entry	2101	Demand Entry:	0 % (0)	Balanced:	0	Demand Exit:	0 % (0)
210 - Single-Family Detached Housing				221 - Multifamily Housing (Mid-Rise)			
Total Trips		Internal Trips		Total		External Trips	
Entry	2101 (100%)	221 - Multifamily Housing (Mid-Rise)	0 (0%)	0 (0%)		2101 (100%)	



LINCKS & ASSOCIATES, INC.

Revised October 19, 2022
June 9, 2022

Mr. Ernie Lane
Hernando County
1400 North Boulevard
Tampa, FL 33607

Re: Sunrise
Lincks Project No. 21132

Dear Mr. Lane,

The purpose of this letter is to establish the methodology to be utilized for the Transportation Analysis for the proposed development located south of SR 50 and east of I-75 in Hernando County, as shown in Figure 1.

The subject property is proposed to be developed for the following land uses:

- Single Family Homes – 4,200 Dwelling Units
- Townhomes – 600 Dwelling Units
- Motel – 75 Rooms
- Retail – 325,000 Square Feet
- Office – 50,000 Square Feet
- Self Storage – 40,000 Square Feet

The access to serve the project is proposed to be via the following roadways:

- Branson Boulevard
- Parkland Ave
- Sunrise Boulevard
- Kettering Road

The site plan for the project is included in the appendix of this letter.

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www.Lincks.com Website

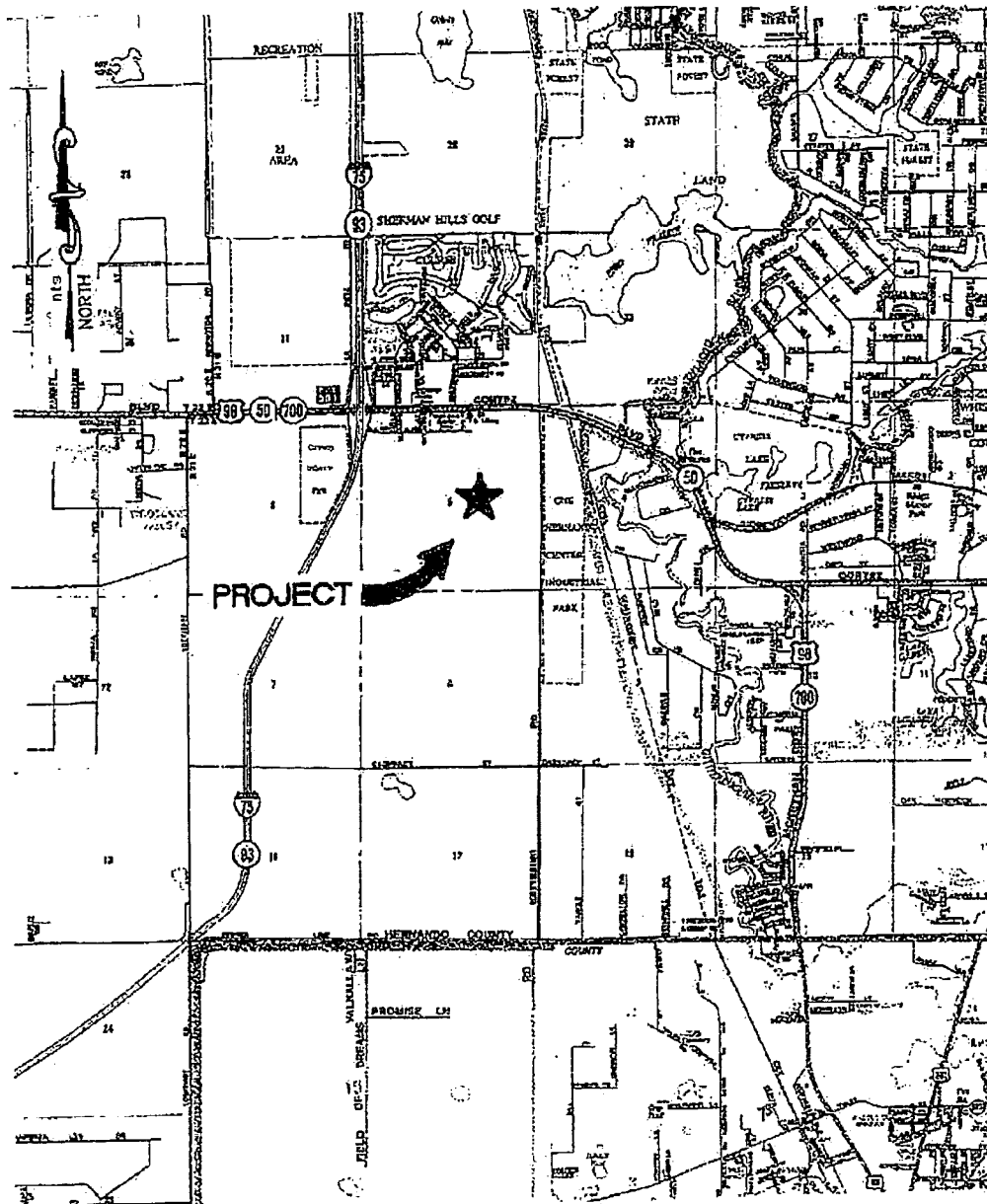


FIGURE 1
PROJECT LOCATION

Trip Generation

The trip rates to be utilized in the analysis will be based on the data contained in the Institute of Transportation Engineers' (ITE) Trip Generation Manual, 11th Edition, 2021.

Internal Capture

The internal capture between the land uses within the project will be calculated based on the methodology outlined in ITE Trip Generation Handbook, 3rd Edition (NCHRP 694).

Passerby Capture

The passerby capture will be calculated based on the methodology outlined in ITE Trip Generation Manual, 11th Edition, 2021.

Tables 1 and 2 provide the AM and PM peak hour trip generation for the project.

Distribution

The distribution will be based on the current FDOT Regional Model. A copy of the model plot is included in the appendix of the letter.

Study Network

The study network will include those roadways in which the PM peak hour project traffic consumes 5.0% of the peak hour adopted Level of Service capacity for the roadways within the vicinity of the project. The roadway capacities were based on 2020 FDOT generalized capacity tables.

Based on the results shown in Table 3, the study network will include the following roadways:

- SR 50/US 98 (Cortez Blvd)
Jasmine Drive to Treiman Boulevard (US 301)
 - SR 50/US 98 (Cortez Blvd)
Main Street to Jefferson Street
 - Kettering Road
Cortez Boulevard to Powerline Road
 - Lockhart Road
Cortez Boulevard to Powerline Road
-

TABLE 1
 AM PEAK HOUR TRIP GENERATION

Land Use	ITE LUC	Size	AM Peak Hour Trip Ends (1)			Internal Trip Ends (2)			Passerby Trip Ends (3)			New External AM Peak Hour Trip Ends		
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Single Family	210	4,200 DU's	764	2,176	2,940	15	24	39	0	0	0	749	2,152	2,901
Multi-Family	221	600 DU's	51	171	222	1	2	3	0	0	0	50	169	219
Motel	320	75 Rooms	10	16	26	0	5	5	0	0	0	10	11	21
Retail	820	325,000 SF	202	123	325	30	20	50	33	20	53	139	83	222
Office	710	50,000 SF	81	11	92	8	3	11	0	0	0	73	8	81
Warehouse	150	40,000 SF	22	6	28	2	2	4	0	0	0	20	4	24
Total			1,130	2,503	3,633	56	56	112	33	20	53	1,041	2,427	3,468

(1) Source - ITE Trip Generation Manual, 11th Edition.

(2) Source - ITE Trip Generation Handbook, 3rd Edition. (NCHRP 634)

(3) Source - ITE Trip Generation Manual, 11th Edition.

• Passerby Trips

Retail - 19%

In - (202-30) x 0.19 = 33

Out - (123-20) x 0.19 = 20

TABLE 2
PM PEAK HOUR TRIP GENERATION

Land Use	ITE LUC	Size	PM Peak Hour Trip Ends (1)			Internal Trip Ends (2)			Passerby Trip Ends (3)			New External PM Peak Hour Trip Ends		
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Single Family	210	4,200 DU's	2,487	1,461	3,948	170	58	228	0	0	0	2,317	1,403	3,720
Multi-Family	221	600 DU's	143	91	234	10	4	14	0	0	0	133	87	220
Motel	320	75 Rooms	16	13	29	5	2	7	0	0	0	11	11	22
Retail	820	325,000 SF	633	686	1,319	85	189	274	104	94	198	444	403	847
Office	710	50,000 SF	16	77	93	3	17	20	0	0	0	13	60	73
Warehouse	150	40,000 SF	9	22	31	2	5	7	0	0	0	7	17	24
Total			3,304	2,350	5,654	275	275	550	104	94	198	2,925	1,981	4,906

(1) Source - ITE Trip Generation Manual, 11th Edition.

(2) Source - ITE Trip Generation Handbook, 3rd Edition. (NCHRP 684)

(3) Source - ITE Trip Generation Manual, 11th Edition.

• Passerby Trips

Retail - 19%

In - $(633-85) \times 0.19 = 104$

Out - $(686-189) \times 0.19 = 94$

TABLE 3
STUDY NETWORK

Roadway Link	Geometry	LOS Standard / Area Type	LOS Capacity(1)	% Project Traffic	PM Peak Hour Project Traffic	% LOS Consumed	Study Network
<u>SR 50 / US 98 (Cortez Blvd)</u>							
Jasmine Dr to Spring Lake Hwy	4LD	C/U	3,420	5.8%	284	8.3%	YES
Spring Lake Hwy to Lockhart Rd	4LD	C/U	3,420	13.8%	882	19.9%	YES
Lockhart Rd to I-75 (SR93) Frontage (W)	6LD	C/U	5,250	17.2%	844	18.1%	YES
I-75 (SR93) Frontage (W) to I-75 SB Ramps	6LD	C/U	5,250	20.8%	1020	19.4%	YES
I-75 NB Ramps to Windmere Rd	6LD	C/U	5,250	44.9%	2203	42.0%	YES
Windmere Rd to Parkland Ave	6LD	C/U	5,250	56.8%	2738	52.2%	YES
Parkland Ave to Kettering Rd	6LD	C/U	5,250	14.3%	702	13.4%	YES
Kettering Rd to Ridge Manor Blvd	8LD	C/U	5,250	20.9%	1,025	19.5%	YES
Ridge Manor Blvd to McKethan Rd (US98/SR700)	4LD	C/U	3,420	20.3%	996	28.1%	YES
McKethan Rd (US98/SR700) to Treiman Blvd (US301/SR35)	4LD	C/U	3,420	12.3%	603	17.6%	YES
Treiman Blvd (US301/SR35) to Burwell Rd	4LD	C/U	3,420	2.3%	113	3.3%	NO
<u>SR 50 / US 98 (Cortez Blvd)</u>							
West Jefferson St to Broad St (US41/SR45)	4LD	C/U	3,420	0.8%	39	1.1%	NO
Broad St (US41/SR45) to Main St	4LD	C/U	3,420	3.2%	157	4.6%	NO
Main St to East Jefferson St (SR50)	4LD	C/U	3,420	3.5%	172	5.0%	YES
<u>KETTERING RD</u>							
Cortez Blvd (SR50) to Cracker Crossing	2LU	D/U	1,197	11.2%	549	45.9%	YES
Cracker Crossing to Powerline Rd	2LU	D/U	1,197	12.4%	808	50.6%	YES
<u>Lockhart Rd</u>							
I-75 (SR93) to Cortez Blvd (SR50)	2LU	D/U	2,180	2.6%	128	5.8%	YES
<u>McKethan Rd (US98/SR700)</u>							
Pasco County Line to Cortez Blvd (SR50)	2LU	C/U	1,620	6.8%	338	20.1%	YES
<u>Treiman Blvd (US301/SR35)</u>							
Pasco County Line to Cortez Blvd (SR50)	2LU	C/U	1,620	0.8%	39	2.4%	NO
Cortez Blvd (SR50) to Ridge Manor Blvd	2LU	C/U	1,620	1.3%	64	4.0%	NO
Ridge Manor Blvd to Sumter County Line	2LU	C/U	1,620	1.3%	64	4.0%	NO
<u>Jefferson St (SR 50A)</u>							
Cortez Blvd to MLK	2LU	C/U	1,510	2.0%	98	6.5%	YES
MLK to N. Broad St	2LU	C/U	1,510	1.5%	74	4.8%	NO
N. Broad St to Main St	2O	C/U	788	0.6%	29	3.7%	NO
<u>Powerline Rd</u>							
Kettering Rd to Lockhart Rd	2LU	C/U	1,620	2.5%	123	7.6%	YES
<u>MLK</u>							
Jefferson St to Main St	2LU	C/U	594	0.4%	20	3.4%	NO
<u>Main St</u>							
Cortez Blvd to MLK	2LU	D/U	1,197	0.0%	0	0.0%	NO
MLK to Broad St	2LU	D/U	1,197	0.3%	15	1.2%	NO

- McKethan Road
Cortez Boulevard to Pasco County Line
- Jefferson Street (SR 50A)
Cortez Boulevard to Martin Luther King Jr.
- Powerline Road
Kettering Road to Lockhart Road

Figure 2 illustrates the study network.

Background Traffic

The buildout of the project is anticipated to be 2035. Therefore the 2035 background traffic utilized in this analysis will be calculated as follows:

1. PM peak hour turning movements counts will be obtained at the following intersections:
 - SR 50 (Cortez Boulevard) and East Jefferson Street
 - SR 50 (Cortez Boulevard) and Lockhart Road
 - SR 50 (Cortez Boulevard) and I-75 Ramps
 - SR 50 (Cortez Boulevard) and Windmere Road
 - SR 50 (Cortez Boulevard) and Parkland Avenue
 - SR 50 (Cortez Boulevard) and Kettering Road
 - SR 50 (Cortez Boulevard) and Ridge Manor Boulevard
 - SR 50 (Cortez Boulevard) and McKethan Road
 - SR 50 (Cortez Boulevard) and US 301
 - SR 50 (Cortez Boulevard) and Main Street
 - Jefferson Street (SR 50A) and Main Street
 - Kettering Road and Powerline Road
 - Powerline Road and Lockhart Road
 2. The existing counts will be factored to peak season based on the FDOT Peak Season Adjustment Factors for Hernando County.
 3. An annual growth rate for each segment contained in the Hernando County Tier 1 spreadsheet will be utilized to factor the peak season traffic to 2035. The annual growth rates are provided in Table 4.
-

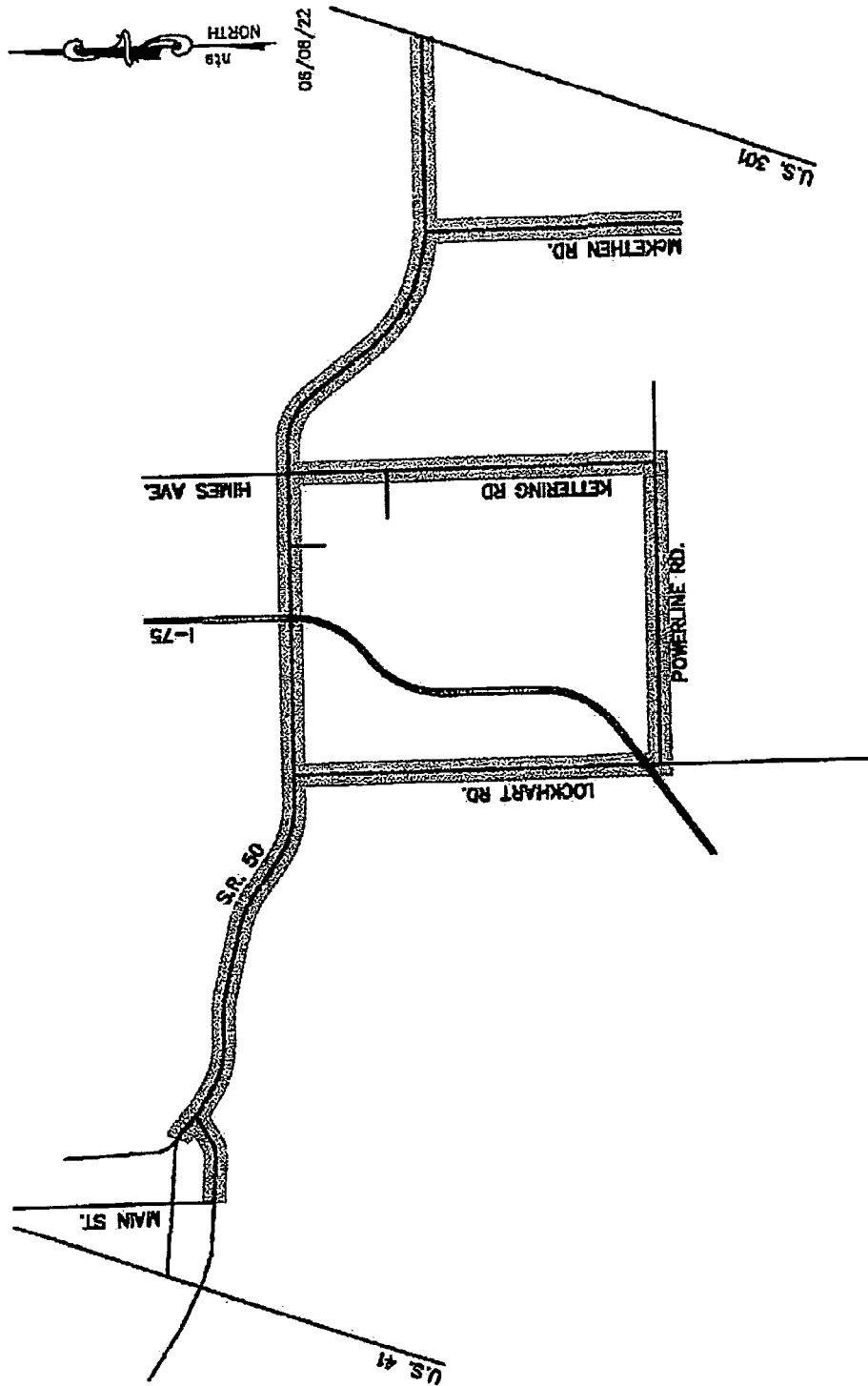


FIGURE 2
STUDY NETWORK

Table 4

Proposed Annual Growth Rates

<u>Segment</u>	<u>From</u>	<u>To</u>	<u>Growth Rate</u>
SR 50	West of Mains St	Main St	2.00%
	Main St	Jasmine Dr	2.00%
	Jasmine Dr	Lockhart Rd	0.90%
	Lockhart Rd	I 75	1.56%
	I 75	Windmere Rd	1.93%
	Windmere Rd	Parkland Ave	1.93%
	Parkland Ave	Sherman Hills Realignment/Access	1.93%
	Sherman Hills Realignment/Access	Kettering Rd	1.93%
	Kettering Rd	Ridge Manor Blvd	1.93%
	Ridge Manor Blvd	McKeaton Rd	1.84%
	McKeaton Rd	US 301	1.76%
Kettering Rd	Powerline Rd	Project Access	2.00%
	Project Access	SR 50	2.00%
Lockhart Rd	Powerline Rd	SR 50	2.00%
McKeaton Rd	Pasco Co Line	SR 50	1.36%
E. Jefferson St	SR 50	MLK Blvd	2.00%
Powerline Rd	Kettering Rd	Lockhart Rd	2.00%

1.) Based on Tier One Spreadsheet

Analysis Scenario

A roadway segment analysis for the PM peak hour shall be performed for roadway segments within the study network. The analysis shall be based on the capacities contained in the 2020 FDOT generalized capacity tables.

In addition, intersection analysis shall be conducted for the following intersections:

- SR 50 (Cortez Boulevard) and Jefferson Street
- SR 50 (Cortez Boulevard) and Lockhart Road
- SR 50 (Cortez Boulevard) and I-75 Ramps
- SR 50 (Cortez Boulevard) and Windmere Road
- SR 50 (Cortez Boulevard) and Parkland Avenue
- SR 50 (Cortez Boulevard) and Kettering Road
- SR 50 (Cortez Boulevard) and Ridge Manor Boulevard
- SR 50 (Cortez Boulevard) and McKethan Road
- SR 50 (Cortez Boulevard) and US 301
- SR 50 (Cortez Boulevard) and Main Street
- Jefferson Street (SR 50A) and Main Street
- Kettering Road and Cracker Crossing
- Kettering Road and Powerline Road
- Powerline Road and Lockhart Road

The following scenarios shall be considered in the analysis:

- 1) Existing peak season traffic with budgeted improvements
- 2) Year 2035 background traffic with budgeted improvements
- 3) Year 2035 background traffic with improvements required to maintain the adopted Level of Service
- 4) Year 2035 background plus project traffic with background improvements
- 5) Year 2035 background plus project traffic with background improvements and any additional improvements required due to project traffic

Intersection Level of Service Criteria

The Level of Service for the intersections shall be as follows:

- The overall intersection should operate at the adopted Level of Service
 - All movements within the intersection should operate with a V/C ratio of 1.0 or less.
-

Mr. Ernie Lane
Revised October 19, 2022
June 9, 2022
Page 11

Site Access

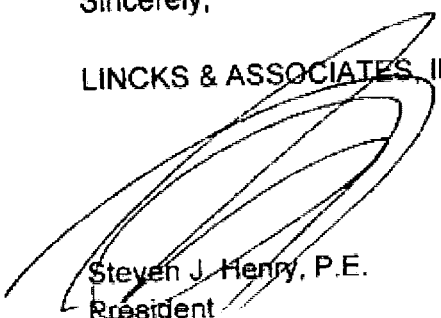
The access for the project will be evaluated to determine if right and left turn lanes are warranted based on AM and PM peak hour volumes.

Please indicate your acceptance of the proposed methodology for the project by signing on the line provided below.

Sincerely,

LINCKS & ASSOCIATES, INC.

I concur:



Steven J. Henry, P.E.
Resident

Mr. Ernie Lane

Date

SJH/TSF/EJG

Enclosures

APPENDIX



ITE – TRIP GENERATION



PERIOD SETTING

Analysis Name : New Analysis
 Project Name : Sunrise - DRH
 Date: 12/9/2021
 State/Province:
 Country:
 Analyst's Name:

No :
 City:
 Zip/Postal Code:
 Client Name:
 Edition: Trip Generation Manual, 11th Ed

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
210 - Single-Family Detached Housing (General Urban/Suburban)	Dwelling Units	4200 ⁽⁰⁾	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Average 0.7	764 26%	2176 74%	2940
221 - Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (General Urban/Suburban)	Dwelling Units	600 ⁽⁰⁾	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Average 0.37	51 23%	171 77%	222
320 - Motel (General Urban/Suburban)	Rooms	75	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Average 0.35	10 38%	16 62%	26
820 - Shopping Center (>150k) (General Urban/Suburban)	1000 Sq. Ft. GLA	325	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Best Fit (LIN) $T = 0.59 (X) + 133.55$	202 62%	123 38%	325
710 - General Office Building (General Urban/Suburban)	1000 Sq. Ft. GFA	50	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Best Fit (LOG) $\ln(T) = 0.86 \ln(X) + 1.16$	81 88%	11 12%	92
150 - Warehousing (General Urban/Suburban)	1000 Sq. Ft. GFA	40	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Best Fit (LIN) $T = 0.12 (X) + 23.62$	22 79%	6 21%	28

(0) indicates size out of range.

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
210 - Single-Family Detached Housing	0 %	764	0 %	2176
221 - Multifamily Housing (Mid-Rise)	0 %	51	0 %	171

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
320 - Motel	0 %	10	0 %	16
820 - Shopping Center (>150k)	0 %	202	0 %	123
710 - General Office Building	0 %	81	0 %	11
150 - Warehousing	0 %	22	0 %	6

INTERNAL TRIPS

210 - Single-Family Detached Housing

Exit 2176 Demand Exit: 0 % (0)
Entry 764 Demand Entry: 0 % (0)

210 - Single-Family Detached Housing

Exit 2176 Demand Exit: 0 % (0)
Entry 764 Demand Entry: 0 % (0)

210 - Single-Family Detached Housing

Exit 2176 Demand Exit: 0 % (0)
Entry 764 Demand Entry: 0 % (0)

210 - Single-Family Detached Housing

Exit 2176 Demand Exit: 0 % (0)
Entry 764 Demand Entry: 0 % (0)

210 - Single-Family Detached Housing

Exit 2176 Demand Exit: 0 % (0)
Entry 764 Demand Entry: 0 % (0)

221 - Multifamily Housing (Mid-Rise)

Exit 171 Demand Exit: 0 % (0)
Entry 51 Demand Entry: 0 % (0)

221 - Multifamily Housing (Mid-Rise)

Exit 171 Demand Exit: 0 % (0)
Entry 51 Demand Entry: 0 % (0)

221 - Multifamily Housing (Mid-Rise)

Exit 171 Demand Exit: 0 % (0)
Entry 51 Demand Entry: 0 % (0)

221 - Multifamily Housing (Mid-Rise)

Balanced: Demand Entry: 0 % (0) Entry 51
0
Balanced: Demand Exit: 0 % (0) Exit 171
0

320 - Motel

Balanced: Demand Entry: 0 % (0) Entry 10
0
Balanced: Demand Exit: 0 % (0) Exit 16
0

820 - Shopping Center (>150k)

Balanced: Demand Entry: 0 % (0) Entry 202
0
Balanced: Demand Exit: 0 % (0) Exit 123
0

710 - General Office Building

Balanced: Demand Entry: 0 % (0) Entry 81
0
Balanced: Demand Exit: 0 % (0) Exit 11
0

150 - Warehousing

Balanced: Demand Entry: 0 % (0) Entry 22
0
Balanced: Demand Exit: 0 % (0) Exit 6
0

320 - Motel

Balanced: Demand Entry: 0 % (0) Entry 10
0
Balanced: Demand Exit: 0 % (0) Exit 16
0

820 - Shopping Center (>150k)

Balanced: Demand Entry: 0 % (0) Entry 202
0
Balanced: Demand Exit: 0 % (0) Exit 123
0

710 - General Office Building

Balanced: Demand Entry: 0 % (0) Entry 81
0
Balanced: Demand Exit: 0 % (0) Exit 11
0

221 - Multifamily Housing (Mid-Rise)

Exit 171 Demand Exit: 0 % (0)

Entry 51 Demand Entry: 0 % (0)

320 - Motel

Exit 16 Demand Exit: 0 % (0)

Entry 10 Demand Entry: 0 % (0)

320 - Motel

Exit 16 Demand Exit: 0 % (0)

Entry 10 Demand Entry: 0 % (0)

320 - Motel

Exit 16 Demand Exit: 0 % (0)

Entry 10 Demand Entry: 0 % (0)

820 - Shopping Center (>150k)

Exit 123 Demand Exit: 0 % (0)

Entry 202 Demand Entry: 0 % (0)

820 - Shopping Center (>150k)

Exit 123 Demand Exit: 0 % (0)

Entry 202 Demand Entry: 0 % (0)

710 - General Office Building

Exit 11 Demand Exit: 0 % (0)

Entry 81 Demand Entry: 0 % (0)

210 - Single-Family Detached Housing

	Total Trips	Internal Trips					Total	External Trips
		221 - Multifamily Housing (Mid-Rise)	320 - Motel	820 - Shopping Center (>150k)	710 - General Office Building	150 - Warehousing		
Entry	764 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	764 (100%)
Exit	2176 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2176 (100%)
Total	2940 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2940 (100%)

221 - Multifamily Housing (Mid-Rise)

	Total Trips	Internal Trips					Total	External Trips
		210 - Single-Family Detached Housing	320 - Motel	820 - Shopping Center (>150k)	710 - General Office Building	150 - Warehousing		
Entry	51 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	51 (100%)

150 - Warehousing

Balanced: 0 Demand Entry: 0 % (0) Entry 22

Balanced: 0 Demand Exit: 0 % (0) Exit 6

820 - Shopping Center (>150k)

Balanced: 0 Demand Entry: 0 % (0) Entry 202

Balanced: 0 Demand Exit: 0 % (0) Exit 123

710 - General Office Building

Balanced: 0 Demand Entry: 0 % (0) Entry 81

Balanced: 0 Demand Exit: 0 % (0) Exit 11

150 - Warehousing

Balanced: 0 Demand Entry: 0 % (0) Entry 22

Balanced: 0 Demand Exit: 0 % (0) Exit 6

710 - General Office Building

Balanced: 0 Demand Entry: 0 % (0) Entry 81

Balanced: 0 Demand Exit: 0 % (0) Exit 11

150 - Warehousing

Balanced: 0 Demand Entry: 0 % (0) Entry 22

Balanced: 0 Demand Exit: 0 % (0) Exit 6

150 - Warehousing

Balanced: 0 Demand Entry: 0 % (0) Entry 22

Balanced: 0 Demand Exit: 0 % (0) Exit 6

Exit	171 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	171 (100%)
Total	222 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	222 (100%)

320 - Motel

	Total Trips	Internal Trips					Total	External Trips
		210 - Single-Family Detached Housing	221 - Multifamily Housing (Mid-Rise)	820 - Shopping Center (>150k)	710 - General Office Building	150 - Warehousing		
Entry	10 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	10 (100%)
Exit	16 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	16 (100%)
Total	26 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	26 (100%)

820 - Shopping Center (>150k)

	Total Trips	Internal Trips					Total	External Trips
		210 - Single-Family Detached Housing	221 - Multifamily Housing (Mid-Rise)	320 - Motel	710 - General Office Building	150 - Warehousing		
Entry	202 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	202 (100%)
Exit	123 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	123 (100%)
Total	325 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	325 (100%)

710 - General Office Building

	Total Trips	Internal Trips					Total	External Trips
		210 - Single-Family Detached Housing	221 - Multifamily Housing (Mid-Rise)	320 - Motel	820 - Shopping Center (>150k)	150 - Warehousing		
Entry	81 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	81 (100%)
Exit	11 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	11 (100%)
Total	92 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	92 (100%)

150 - Warehousing

	Total Trips	Internal Trips					Total	External Trips
		210 - Single-Family Detached Housing	221 - Multifamily Housing (Mid-Rise)	320 - Motel	820 - Shopping Center (>150k)	710 - General Office Building		
Entry	22 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	22 (100%)
Exit	6 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	6 (100%)
Total	28 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	28 (100%)

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
----------	----------------	----------	---------------	-------------------

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
210 - Single-Family Detached Housing	2940	0	0	2940
221 - Multifamily Housing (Mid-Rise)	222	0	0	222
320 - Motel	26	0	0	26
820 - Shopping Center (>150k)	325	0	0	325
710 - General Office Building	92	0	0	92
150 - Warehousing	28	0	0	28

ITE DEVIATION DETAILS

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.

Landuse No deviations from ITE.

Methods No deviations from ITE.

External Trips 210 - Single-Family Detached Housing (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

221 - Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

320 - Motel (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

820 - Shopping Center (>150k) (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

710 - General Office Building (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

150 - Warehousing (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

SUMMARY

Total Entering	1130
Total Exiting	2503
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	0
Total Exiting Internal Capture Reduction	0
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	1130
Total Entering Non-Pass-by Trips	2503
Total Exiting Non-Pass-by Trips	

PERIOD SETTING

Analysis Name :	New Analysis	No :	
Project Name :	Sunrise - DRH	City:	
Date:	12/9/2021	Zip/Postal Code:	
State/Province:		Client Name:	
Country:		Edition:	Trip Generation Manual, 11th Ed
Analyst's Name:			

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
210 - Single-Family Detached Housing (General Urban/Suburban)	Dwelling Units	4200 ⁽⁰⁾	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Average 0.94	2487 63%	1461 37%	3948
221 - Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (General Urban/Suburban)	Dwelling Units	600 ⁽⁰⁾	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Average 0.39	143 61%	91 39%	234
320 - Motel (General Urban/Suburban)	Rooms	75	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Best Fit (LIN) $T = 0.24 (X) + 11.16$	16 55%	13 45%	29
820 - Shopping Center (>150k) (General Urban/Suburban)	1000 Sq. Ft. GLA	325	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Best Fit (LOG) $\ln(T) = 0.72\ln(X) + 3.02$	633 48%	686 52%	1319
710 - General Office Building (General Urban/Suburban)	1000 Sq. Ft. GFA	50	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Best Fit (LOG) $\ln(T) = 0.83\ln(X) + 1.29$	16 17%	77 83%	93
150 - Warehousing (General Urban/Suburban)	1000 Sq. Ft. GFA	40	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Best Fit (LIN) $T = 0.12 (X) + 26.48$	9 29%	22 71%	31

(0) indicates size out of range.

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
210 - Single-Family Detached Housing	0 %	2487	0 %	1461
221 - Multifamily Housing (Mid-Rise)	0 %	143	0 %	91

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
320 - Motel	0 %	16	0 %	13
820 - Shopping Center (>150k)	0 %	633	0 %	686
710 - General Office Building	0 %	16	0 %	77
150 - Warehousing	0 %	9	0 %	22

INTERNAL TRIPS

210 - Single-Family Detached Housing

Exit 1461 Demand Exit: 0 % (0)

Entry 2487 Demand Entry: 0 % (0)

210 - Single-Family Detached Housing

Exit 1461 Demand Exit: 0 % (0)

Entry 2487 Demand Entry: 0 % (0)

210 - Single-Family Detached Housing

Exit 1461 Demand Exit: 0 % (0)

Entry 2487 Demand Entry: 0 % (0)

210 - Single-Family Detached Housing

Exit 1461 Demand Exit: 0 % (0)

Entry 2487 Demand Entry: 0 % (0)

210 - Single-Family Detached Housing

Exit 1461 Demand Exit: 0 % (0)

Entry 2487 Demand Entry: 0 % (0)

221 - Multifamily Housing (Mid-Rise)

Exit 91 Demand Exit: 0 % (0)

Entry 143 Demand Entry: 0 % (0)

221 - Multifamily Housing (Mid-Rise)

Exit 91 Demand Exit: 0 % (0)

Entry 143 Demand Entry: 0 % (0)

221 - Multifamily Housing (Mid-Rise)

Exit 91 Demand Exit: 0 % (0)

Entry 143 Demand Entry: 0 % (0)

221 - Multifamily Housing (Mid-Rise)

Balanced: 0 Demand Entry: 0 % (0) Entry 143

Balanced: 0 Demand Exit: 0 % (0) Exit 91

320 - Motel

Balanced: 0 Demand Entry: 0 % (0) Entry 16

Balanced: 0 Demand Exit: 0 % (0) Exit 13

820 - Shopping Center (>150k)

Balanced: 0 Demand Entry: 0 % (0) Entry 633

Balanced: 0 Demand Exit: 0 % (0) Exit 686

710 - General Office Building

Balanced: 0 Demand Entry: 0 % (0) Entry 16

Balanced: 0 Demand Exit: 0 % (0) Exit 77

150 - Warehousing

Balanced: 0 Demand Entry: 0 % (0) Entry 9

Balanced: 0 Demand Exit: 0 % (0) Exit 22

320 - Motel

Balanced: 0 Demand Entry: 0 % (0) Entry 16

Balanced: 0 Demand Exit: 0 % (0) Exit 13

820 - Shopping Center (>150k)

Balanced: 0 Demand Entry: 0 % (0) Entry 633

Balanced: 0 Demand Exit: 0 % (0) Exit 686

710 - General Office Building

Balanced: 0 Demand Entry: 0 % (0) Entry 16

Balanced: 0 Demand Exit: 0 % (0) Exit 77

Exit	91 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	91 (100%)
Total	234 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	234 (100%)

320 - Motel

	Total Trips	Internal Trips					Total	External Trips
		210 - Single-Family Detached Housing	221 - Multifamily Housing (Mid-Rise)	820 - Shopping Center (>150k)	710 - General Office Building	150 - Warehousing		
Entry	16 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	16 (100%)
Exit	13 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	13 (100%)
Total	29 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	29 (100%)

820 - Shopping Center (>150k)

	Total Trips	Internal Trips					Total	External Trips
		210 - Single-Family Detached Housing	221 - Multifamily Housing (Mid-Rise)	320 - Motel	710 - General Office Building	150 - Warehousing		
Entry	633 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	633 (100%)
Exit	686 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	686 (100%)
Total	1319 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1319 (100%)

710 - General Office Building

	Total Trips	Internal Trips					Total	External Trips
		210 - Single-Family Detached Housing	221 - Multifamily Housing (Mid-Rise)	320 - Motel	820 - Shopping Center (>150k)	150 - Warehousing		
Entry	16 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	16 (100%)
Exit	77 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	77 (100%)
Total	93 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	93 (100%)

150 - Warehousing

	Total Trips	Internal Trips					Total	External Trips
		210 - Single-Family Detached Housing	221 - Multifamily Housing (Mid-Rise)	320 - Motel	820 - Shopping Center (>150k)	710 - General Office Building		
Entry	9 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	9 (100%)
Exit	22 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	22 (100%)
Total	31 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	31 (100%)

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
----------	----------------	----------	---------------	-------------------

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
210 - Single-Family Detached Housing	3948	0	0	3948
221 - Multifamily Housing (Mid-Rise)	234	0	0	234
320 - Motel	29	0	0	29
820 - Shopping Center (>150k)	1319	0	0	1319
710 - General Office Building	93	0	0	93
150 - Warehousing	31	0	0	31

ITE DEVIATION DETAILS

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.

Landuse No deviations from ITE.

Methods No deviations from ITE.

External Trips 210 - Single-Family Detached Housing (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

221 - Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

320 - Motel (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

820 - Shopping Center (>150k) (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

710 - General Office Building (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

150 - Warehousing (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

SUMMARY

Total Entering	3304
Total Exiting	2350
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	0
Total Exiting Internal Capture Reduction	0
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	3304
Total Exiting Non-Pass-by Trips	2350

INTERNAL CAPTURE



LINCKS & ASSOCIATES, INC.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Sunrise	Organization:	
Project Location:		Performed By:	
Scenario Description:		Date:	
Analysis Year:		Checked By:	
Analysis Period:	AM Street Peak Hour	Date:	

Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ⁵		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	710, 150	90,000	SF	120	103	17
Retail	620	325,000	SF	325	202	123
Restaurant				0		
Cinema/Entertainment				0		
Residential	210, 221	4,800	DU's	3,162	815	2,347
Hotel	320	75	RM	26	10	16
All Other Land Uses ²				0		
				3,633	1,130	2,503

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	0	0	0	0
Retail	4		0	0	16	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	23	0	0		0
Hotel	3	2	0	0	0	

	Total	Entering	Exiting
All Person-Trips	3,633	1,130	2,503
Internal Capture Percentage	3%	5%	2%
External Vehicle-Trips ²	3,521	1,074	2,447
External Transit-Trips ³	0	0	0
External Non-Motorized Trips ⁵	0	0	0

Land Use	Entering Trips	Exiting Trips
Office	10%	29%
Retail	15%	16%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	1%
Hotel	0%	31%

- ¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.
- ²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
- ³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).
- ⁴Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.
- ⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.
- ⁶Person-Trips
- ⁷Indicates computation that has been rounded to the nearest whole number.
- Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Sunrise
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (C): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	103	103	1.00	17	17
Retail	1.00	202	202	1.00	123	123
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	815	815	1.00	2347	2347
Hotel	1.00	10	10	1.00	16	16

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	11	0	0	0
Retail	36		16	0	17	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	47	23	469	0		0
Hotel	12	2	1	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		65	0	0	0	0
Retail	2		0	0	16	0
Restaurant	14	16		0	41	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	34	0	0		0
Hotel	3	8	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	10	93	103	93	0	0
Retail	30	172	202	172	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	16	799	815	799	0	0
Hotel	0	10	10	10	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	5	12	17	12	0	0
Retail	20	103	123	103	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	28	2321	2347	2321	0	0
Hotel	5	11	16	11	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Sunrise		Organization:
Project Location:			Performed By:
Scenario Description:			Date:
Analysis Year:			Checked By:
Analysis Period:	PM Street Peak Hour		Date:

Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ²		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	710, 150	90,000	SF	124	25	99
Retail	820	325,000	SF	1,318	633	686
Restaurant				0		
Cinema/Entertainment				0		
Residential	210, 221	4,800	DU	4,182	2,630	1,552
Hotel	320	75	RM	29	16	13
All Other Land Uses ²				0		
				5,654	3,304	2,350

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		20	0	0	2	0
Retail	8		0	0	178	3
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	14	63	0	0		2
Hotel	0	12	0	0	0	

	Total	Entering	Exiting
All Person-Trips	5,654	3,304	2,350
Internal Capture Percentage	10%	9%	12%
External Vehicle-Trips ⁵	5,070	3,012	2,058
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Land Use	Entering Trips	Exiting Trips
Office	88%	22%
Retail	13%	28%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	7%	5%
Hotel	31%	15%

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

⁶Person-Trips

⁷Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Sunrise
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	25	25	1.00	99	99
Retail	1.00	633	633	1.00	686	686
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	2630	2630	1.00	1552	1552
Hotel	1.00	16	16	1.00	13	13

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		20	4	0	2	0
Retail	14		199	27	178	34
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	62	652	326	0		47
Hotel	0	0	9	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		51	0	0	105	0
Retail	8		0	0	1210	3
Restaurant	8	317		0	421	11
Cinema/Entertainment	2	26	0		105	0
Residential	14	63	0	0		2
Hotel	0	13	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ³
Office	225	3	25	3	0	0
Retail	85	548	633	548	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	180	2450	2630	2450	0	0
Hotel	5	11	16	11	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ³
Office	22	77	99	77	0	0
Retail	189	497	686	497	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2062	1473	1552	1473	0	0
Hotel	2	11	13	11	0	0
All Other Land Uses ³	0	0	0	0	0	0

*Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

⁴Indicates computation that has been rounded to the nearest whole number.

Table 7.1a Adjusted Internal Trip Capture Rates for Trip Origins within a Multi-Use Development

Land Use Pairs		Weekday	
		AM Peak Hour	PM Peak Hour
From OFFICE	To Office	0.0%	0.0%
	To Retail	28.0%	20.0%
	To Restaurant	63.0%	4.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	1.0%	2.0%
	To Hotel	0.0%	0.0%
From RETAIL	To Office	29.0%	2.0%
	To Retail	0.0%	0.0%
	To Restaurant	13.0%	29.0%
	To Cinema/Entertainment	0.0%	4.0%
	To Residential	14.0%	26.0%
	To Hotel	0.0%	5.0%
From RESTAURANT	To Office	31.0%	3.0%
	To Retail	14.0%	41.0%
	To Restaurant	0.0%	0.0%
	To Cinema/Entertainment	0.0%	8.0%
	To Residential	4.0%	18.0%
	To Hotel	3.0%	7.0%
From CINEMA/ENTERTAINMENT	To Office	0.0%	2.0%
	To Retail	0.0%	21.0%
	To Restaurant	0.0%	31.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	0.0%	8.0%
	To Hotel	0.0%	2.0%
From RESIDENTIAL	To Office	2.0%	4.0%
	To Retail	1.0%	42.0%
	To Restaurant	20.0%	21.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	0.0%	0.0%
	To Hotel	0.0%	3.0%
From HOTEL	To Office	75.0%	0.0%
	To Retail	14.0%	16.0%
	To Restaurant	9.0%	68.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	0.0%	2.0%
	To Hotel	0.0%	0.0%

Table 7.2a Adjusted Internal Trip Capture Rates for Trip Destinations within a Multi-Use Development			
Land Use Pairs		Weekday	
		AM Peak Hour	PM Peak Hour
To OFFICE	From Office	0.0%	0.0%
	From Retail	4.0%	31.0%
	From Restaurant	14.0%	30.0%
	From Cinema/Entertainment	0.0%	6.0%
	From Residential	3.0%	57.0%
	From Hotel	3.0%	0.0%
To RETAIL	From Office	32.0%	8.0%
	From Retail	0.0%	0.0%
	From Restaurant	8.0%	50.0%
	From Cinema/Entertainment	0.0%	4.0%
	From Residential	17.0%	10.0%
	From Hotel	4.0%	2.0%
To RESTAURANT	From Office	23.0%	2.0%
	From Retail	50.0%	29.0%
	From Restaurant	0.0%	0.0%
	From Cinema/Entertainment	0.0%	3.0%
	From Residential	20.0%	14.0%
	From Hotel	6.0%	5.0%
To CINEMA/ENTERTAINMENT	From Office	0.0%	1.0%
	From Retail	0.0%	26.0%
	From Restaurant	0.0%	32.0%
	From Cinema/Entertainment	0.0%	0.0%
	From Residential	0.0%	0.0%
	From Hotel	0.0%	0.0%
To RESIDENTIAL	From Office	0.0%	4.0%
	From Retail	2.0%	46.0%
	From Restaurant	5.0%	16.0%
	From Cinema/Entertainment	0.0%	4.0%
	From Residential	0.0%	0.0%
	From Hotel	0.0%	0.0%
To HOTEL	From Office	0.0%	0.0%
	From Retail	0.0%	17.0%
	From Restaurant	4.0%	71.0%
	From Cinema/Entertainment	0.0%	1.0%
	From Residential	0.0%	12.0%
	From Hotel	0.0%	0.0%

PASSERBY PERCENT



Vehicle Pass-By Rates by Land Use

Source: ITE Trip Generation Manual, 11th Edition

Vehicle Pass-By Rates by Land Use									
Source: ITE Trip Generation Manual, 11th Edition									
820									
Land Use Code	Shopping Center (> 150k)								
Land Use	General Urban/Suburban								
Setting	Weekday PM Peak Period								
Time Period									
# Data Sites	8 Sites with GLA between 150 and 300k				16 Sites with GLA between 300 and 900k				
Average Pass-By Rate	29% for Sites with GLA between 150 and 300k				19% for Sites with GLA between 300 and 900k				
Pass-By Characteristics for Individual Sites									
GLA (000)	State or Province	Survey Year	# Interviews	Pass-By Trip (%)	Non-Pass-By Trips			Adj Street Peak Hour Volume:	Source
					Primary (%)	Diverted (%)	Total (%)		
213	Florida	1990	312	28	31	41	72	—	33
225	Illinois	1994	264	35	32	33	65	1970	24
227.9	Kentucky	1993	—	34	35	31	66	—	34
235	Kentucky	1993	211	35	29	36	65	2593	2
255	Iowa	1994	222	23	38	39	77	3706	24
256	Connecticut	1994	208	27	51	22	73	3422	24
293	Illinois	1994	282	24	70	6	76	4606	13
294	Pennsylvania	1994	213	24	48	18	76	4055	24
350	Massachusetts	1994	224	18	45	37	82	2112	24
361	Virginia	1994	315	17	54	29	83	2034	24
375	North Carolina	1994	214	29	48	23	71	2053	24
413	Texas	1994	228	28	51	21	72	589	24
418	Maryland	1994	281	20	50	30	80	5610	24
450	California	1994	321	23	49	28	77	2787	24
476	Washington	1994	234	25	53	22	75	3427	24
488	Texas	1994	257	12	75	13	88	1094	13
560	Virginia	1994	437	19	49	32	81	3051	24
581	Colorado	1994	296	18	53	29	82	2939	24
598	Colorado	1994	205	17	55	28	83	3840	24
633	Texas	1994	257	10	64	26	90	—	24
667	Illinois	1994	200	16	53	31	84	2770	24
738	New Jersey	1994	283	13	75	12	87	8059	24
800	California	1994	205	21	51	28	79	7474	24
808	California	1994	240	13	73	14	87	4035	24

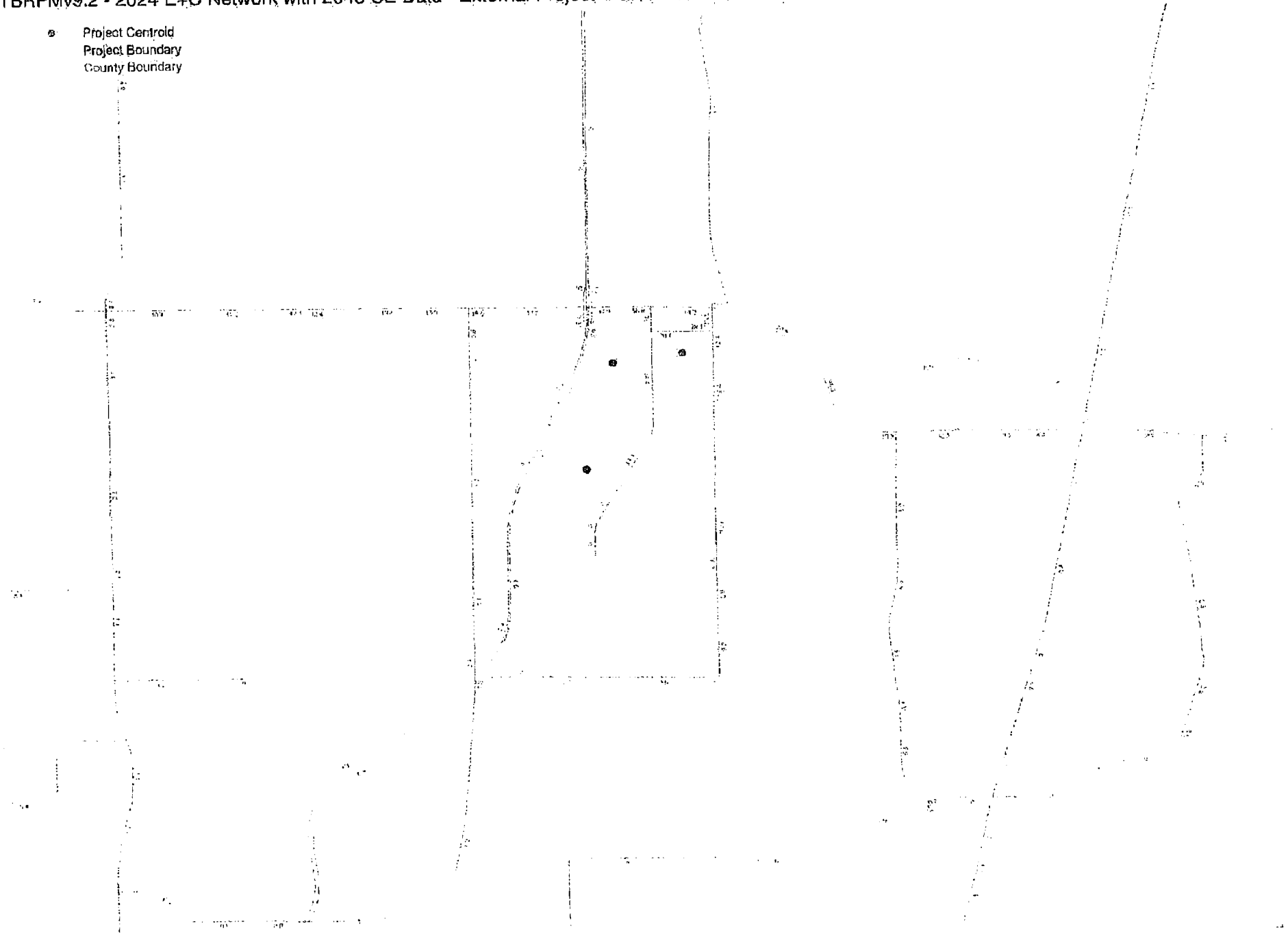
PROJECT TRAFFIC DISTRIBUTION



LINCKS & ASSOCIATES, INC.

TBRPMv9.2 - 2024 E+C Network with 2045 SE Data - External Project Traffic Percent Distribution

- Project Centroid
- Project Boundary
- County Boundary



HERNANDO CO.
CONCURRENCY MANAGEMENT SYSTEM
TIER 1 TEST SPREADSHEETS



Herando County Concurrency Management System
Tier I Test To Determine Concurrency or Need for Additional Analysis
 Version: 12/26/2018, v. 1.0 (Page 5 of 11) - August 2018, version 1.0 implemented
 Revised: 08/26/2018, by P. (P) and D. (D)

1) Please refer to the "Appendix" section of the report for the list of the authors of the papers.

1. University under the same concerned project
of the amount of the year 1990-1991.
The year should be reported as per the
university records.

Name of the project: T. A. C.
Completed - 1991-92 - 1992-93

2. Monthly under the total will be a proposed
byline has related with your development.
Must be the same person in the should be
reported as first four summary columns.

Table Project Initials - Type Type
Conversion - Planned Report

[illegible]

Approved by the
Distribution by the
United States
Department of
Education
Office of
Education

General Information				Contract Type		Contract Details		Contract Dates		Contract Values		Contract Status		Contract History		Contract Notes		Contract Comments		Contract Actions		Contract Totals	
Contract ID	Contract Name	Contract Type	Contract Status	Contract Dates	Contract Values	Contract Status	Contract History	Contract Notes	Contract Comments	Contract Actions	Contract Totals	Contract Dates	Contract Values	Contract Status	Contract History	Contract Notes	Contract Comments	Contract Actions	Contract Totals	Contract Dates	Contract Values	Contract Status	Contract History
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15									

Available all over the
country by mail or
by phone. For more
information, call
1-800-368-3683.

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[illegible][illegible]

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FDOT GENERALIZED CAPACITY TABLES



TABLE 4

Generalized Peak Hour Two-Way Volumes for Florida's
Urbanized Areas¹

January 2020

INTERRUPTED FLOW FACILITIES						UNINTERRUPTED FLOW FACILITIES					
STATE SIGNALIZED ARTERIALS						FREEWAYS					
Class I (40 mph or higher posted speed limit)						Core Urbanized					
Lanes	Median	B	C	D	E	Lanes	B	C	D	E	
2	Undivided	*	1,510	1,600	**	4	4,050	5,640	6,800	7,420	
4	Divided	*	3,420	3,580	**	6	5,960	8,310	10,220	11,150	
6	Divided	*	5,250	5,390	**	8	7,840	10,960	13,620	14,850	
8	Divided	*	7,090	7,210	**	10	9,800	13,510	17,040	18,580	
						12	11,600	16,350	20,930	23,200	
Class II (35 mph or slower posted speed limit)						Urbanized					
Lanes	Median	B	C	D	E	Lanes	B	C	D	E	
2	Undivided	*	660	1,330	1,410	4	4,130	5,640	7,070	7,690	
4	Divided	*	1,310	2,920	3,040	6	6,200	8,450	10,510	11,530	
6	Divided	*	2,090	4,500	4,590	8	8,270	11,270	13,960	15,380	
8	Divided	*	2,880	6,060	6,130	10	10,350	14,110	17,310	19,220	
Non-State Signalized Roadway Adjustments (Alter corresponding state volumes by the indicated percent.)						Freeway Adjustments					
Non-State Signalized Roadways - 10%						Auxiliary Lanes Present in Both Directions + 1,800					
Median & Turn Lane Adjustments						Ramp Metering + 5%					
Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors		UNINTERRUPTED FLOW HIGHWAYS					
2	Divided	Yes	No	+5%		Lanes	Median	B	C	D	E
2	Undivided	No	No	-20%		2	Undivided	1,050	1,620	2,180	2,930
Multi	Undivided	Yes	No	-5%		4	Divided	3,270	4,730	5,960	6,780
Multi	Undivided	No	No	-25%		6	Divided	4,910	7,090	8,950	10,180
-	-	-	Yes	+ 5%		Uninterrupted Flow Highway Adjustments					
One-Way Facility Adjustment Multiply the corresponding two-directional volumes in this table by 0.6						Lanes	Median	Exclusive left lanes	Adjustment factors		
						2	Divided	Yes	+5%		
						Multi	Undivided	Yes	-5%		
						Multi	Undivided	No	-25%		
BICYCLE MODE² (Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)						¹ Values shown are presented as peak hour directional volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the HCM and the Transit Capacity and Quality of Service Manual.					
Paved Shoulder/Bicycle Lane Coverage						² Level of service for the bicycle and pedestrian modes in this table is based on number of vehicles, not number of bicyclists or pedestrians using the facility.					
0-49%		B	C	D	E	³ Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.					
50-84%		*	260	680	1,770	⁴ Cannot be achieved using table input value defaults.					
85-100%		190	600	1,770	>1,770	⁵ Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.					
		830	1,700	>1,770	**	Source: Florida Department of Transportation Systems Implementation Office https://www.fltdot.gov/planning/systems/					
PEDESTRIAN MODE² (Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)											
Sidewalk Coverage											
0-49%		B	C	D	E						
50-84%		*	*	250	850						
85-100%		*	150	780	1,420						
		340	960	1,560	>1,770						
BUS MODE (Scheduled Fixed Route)³ (Buses in peak hour in peak direction)											
Sidewalk Coverage											
0-84%		B	C	D	E						
85-100%		> 5	≥ 4	≥ 3	≥ 2						
		> 4	≥ 3	≥ 2	≥ 1						

TABLE 4
(continued)

Generalized Peak Hour Two-Way Volumes for Florida's
Urbanized Areas

January 2020

INPUT VALUE ASSUMPTIONS	Uninterrupted Flow Facilities				Interrupted Flow Facilities					
					State Arterials				Class I	
	Freeways	Core Freeways	Highways		Class I		Class II		Bicycle	Pedestrian
ROADWAY CHARACTERISTICS										
Area type (urban, rural)	urban	urban								
Number of through lanes (both dir.)	4-10	4-12	2	4-6	2	4-8	2	4-8	4	4
Posted speed (mph)	70	65	50	50	45	50	30	30	45	45
Free flow speed (mph)	75	70	55	55	50	55	35	35	50	50
Auxiliary Lanes (n,y)	n	n								
Median (d, twlt, n, nr, r)				d	n	r	n	r	r	r
Terrain (l,r)	l	l	l	l	l	l	l	l	l	l
% no passing zone			80							
Exclusive left turn lane impact (n, y)			[n]	y	y	y	y	y	y	y
Exclusive right turn lanes (n, y)					n	n	n	n	n	n
Facility length (mi)	3	3	5	5	2	2	1.9	1.8	2	2
TRAFFIC CHARACTERISTICS										
Planning analysis hour factor (K)	0.090	0.085	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
Directional distribution factor (D)	0.55	0.55	0.55	0.55	0.550	0.560	0.565	0.560	0.565	0.565
Peak hour factor (PHF)	0.95	0.95	0.95	0.95	1.000	1.000	1.000	1.000	1.000	1.000
Base saturation flow rate (pcphpl)	2,400	2,400	1,700	2,200	1,950	1,950	1,950	1,950	1,950	1,950
Heavy vehicle percent	4.0	4.0	2.0	2.0	1.0	1.0	1.0	1.0	2.5	2.0
Speed Adjustment Factor (SAF)	0.975	0.975		0.975						
Capacity Adjustment Factor (CAF)	0.968	0.968		0.968						
% left turns					12	12	12	12	12	12
% right turns					12	12	12	12	12	12
CONTROL CHARACTERISTICS										
Number of signals					4	4	10	10	4	6
Arrival type (1-6)					3	3	4	4	4	4
Signal type (a, c, p)					c	c	c	c	c	c
Cycle length (C)					120	150	120	120	120	120
Effective green ratio (g/C)					0.44	0.45	0.44	0.44	0.44	0.44
MULTIMODAL CHARACTERISTICS										
Paved shoulder/bicycle lane (n, y)									n, 50%, y	n
Outside lane width (n, t, w)									t	t
Pavement condition (d, t, u)									t	t
On-street parking (n, y)										n, 50%, y
Sidewalk (n, y)										t
Sidewalk/roadway separation(a, t, w)										n
Sidewalk protective barrier (n, y)										n
LEVEL OF SERVICE THRESHOLDS										
Level of Service	Freeways	Highways		Arterials		Bicycle	Ped	Bus		
	Density	Two-Lane %ffs	Multilane Density	Class I ars	Class II ats	Score	Score	Buses/hr		
B	≤ 17	> 83.3	≤ 17	> 31 mph	> 22 mph	≤ 2.75	≤ 2.75	≤ 6		
C	≤ 24	> 75.0	≤ 24	> 23 mph	> 17 mph	≤ 3.50	≤ 3.50	≤ 4		
D	≤ 31	> 66.7	≤ 31	> 18 mph	> 13 mph	≤ 4.25	≤ 4.25	< 3		
E	≤ 39	> 58.3	≤ 35	> 15 mph	> 10 mph	≤ 5.00	≤ 5.00	< 2		

% ffs = Percent free flow speed ats = Average travel speed

TABLE 5

**Generalized Peak Hour Two-Way Volumes for Florida's
Transitioning Areas and
Areas Over 5,000 Not In Urbanized Areas¹**

January 2020

Areas Over 5,000 Not in Urbanized Areas

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Class I (40 mph or higher posted speed limit)					
Lanes	Median	B	C	D	E
2	Undivided	*	1,300	1,460	**
4	Divided	*	3,060	3,200	**
6	Divided	*	4,690	4,820	**
Class II (35 mph or slower posted speed limit)					
Lanes	Median	B	C	D	E
2	Undivided	*	580	1,200	1,280
4	Divided	*	890	2,590	2,850
6	Divided	*	1,440	4,040	4,280

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes,
by the indicated percent)

Non-State Signalized Roadways - 10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
2	Divided	Yes	No	+5%
2	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
-	-	-	Yes	+5%

One-Way Facility Adjustment

Multiply the corresponding two-directional
volumes in this table by 0.6

BICYCLE MODE²

(Multiply vehicle volumes shown below by number of
directional roadway lanes to determine two-way maximum service
volumes)

Paved Shoulder/Bicycle Lane Coverage	B	C	D	E
0-49%	*	140	550	1,760
50-84%	170	500	1,650	>1,760
85-100%	670	1,760	>1,760	**

PEDESTRIAN MODE²

(Multiply vehicle volumes shown below by number of
directional roadway lanes to determine two-way maximum service
volumes)

Sidewalk Coverage	B	C	D	E
0-49%	*	*	250	850
50-84%	*	150	780	1,410
85-100%	340	950	1,540	>1,760

BUS MODE (Scheduled Fixed Route)³

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	≥ 5	≥ 4	≥ 3	≥ 2
85-100%	≥ 4	≥ 3	≥ 2	≥ 1

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Lanes	B	C	D	E
4	4,420	5,780	6,890	7,110
6	6,400	8,490	10,200	10,670
8	8,420	11,220	13,530	14,240
10	9,960	13,290	15,870	17,820

Freeway Adjustments

Auxiliary Lanes	Ramp Metering
Present in Both Directions + 1,800	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
2	Undivided	1,020	1,560	2,110	2,840
4	Divided	3,110	4,490	5,670	6,450
6	Divided	4,650	6,730	8,510	9,670

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
2	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	+25%

¹ Values shown are presented as peak hour directional volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the HCM and the Transit Capacity and Quality of Service Manual.

² Level of service for the bicycle and pedestrian modes in this table is based on number of vehicles, not number of bicycles or pedestrians using the facility.

³ Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

* Cannot be achieved using table input value defaults

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become * because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Implementation Office
<https://www.fdot.gov/planning-systems>

TABLE 5
(continued)

Generalized **Peak Hour Two-Way** Volumes for Florida's
Transitioning Areas and
Areas Over 5,000 Not in Urbanized Areas

January 2020

INPUT VALUE ASSUMPTIONS	Uninterrupted Flow Facilities		Interrupted Flow Facilities						
			State Arterials				Class I		
	Freeways	Highways	Class I		Class II		Bicycle	Pedestrian	
ROADWAY CHARACTERISTICS									
Area type (urban, rural)	urban								
Number of through lanes (both dir.)	4-10	2	4-6	2	4-6	2	4-6	4	4
Posted speed (mph)	70	50	50	45	50	30	30	45	45
Free flow speed (miph)	75	55	55	50	55	35	35	50	50
Auxiliary lanes (n, y)	n								
Median (d, n, nr, r)			d	n	y	n	y	r	r
Terrain (l, r)	l	l	l	l	l	l	l	l	l
% no passing zone		60							
Exclusive left turn lane impact (n, y)		[n]	y	y	y	y	y	y	y
Exclusive right turn lanes (n, y)				n	n	n	n	n	n
Facility length (mi)	6	5	5	1.8	2	2	2	2	2
TRAFFIC CHARACTERISTICS									
Planning analysis hour factor (K)	0.098	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
Directional distribution factor (D)	0.55	0.55	0.55	0.550	0.570	0.570	0.565	0.570	0.570
Peak hour factor (PHF)	0.92	0.92	0.92	1.000	1.000	1.000	1.000	1.000	1.000
Base saturation flow rate (pcphpl)	2,400	1,700	2,200	1,950	1,950	1,950	1,950	1,950	1,950
Heavy vehicle percent	9.0	4.0	4.0	2.0	3.0	2.0	3.0	3.0	3.0
Speed Adjustment Factor (SAF)	0.975		0.975						
Capacity Adjustment Factor (CAF)	0.968		0.968						
% left turns				12	12	12	12	12	12
% right turns				12	12	12	12	12	12
CONTROL CHARACTERISTICS									
Number of signals				5	4	10	10	4	6
Arrival type (1-6)				4	3	4	4	4	4
Signal type (a, c, p)				c	c	c	c	c	c
Cycle length (C)				120	150	120	150	120	120
Effective green ratio (g/C)				0.44	0.45	0.44	0.45	0.44	0.44
MULTIMODAL CHARACTERISTICS									
Paved shoulder/bicycle lane (n, y)								n, 50%, y	n
Outside lane width (n, l, w)								l	l
Pavement condition (d, l, u)								l	
On-street parking (n, y)								n	n
Sidewalk (n, y)									n, 50%, y
Sidewalk/roadway separation (a, l, w)									l
Sidewalk protective barrier (n, y)									n
LEVEL OF SERVICE THRESHOLDS									
Level of Service	Freeways	Highways		Arterials		Bicycle	Ped	Bus	
	Density	Two-Lane	Multilane	Class I ats	Class II ats	Score	Score	Buses/mi	
		%ffs	Density						
B	≤ 17	> 83.3	≤ 17	> 31 mph	> 22 mph	≤ 2.75	≤ 2.75	≤ 6	
C	≤ 24	> 75.0	≤ 24	> 23 mph	> 17 mph	≤ 3.50	≤ 3.50	≤ 4	
D	≤ 31	> 66.7	≤ 31	> 18 mph	> 13 mph	≤ 4.25	≤ 4.25	< 3	
E	≤ 39	> 58.3	≤ 35	> 15 mph	> 10 mph	≤ 5.00	≤ 5.00	< 2	

% ffs = Percent free flow speed ats = Average travel speed

TABLE 6

**Generalized Peak Hour Two-Way Volumes for Florida's
Rural Undeveloped Areas and
Developed Areas Less Than 5,000 Population¹**

January 2020

INTERRUPTED FLOW FACILITIES						UNINTERRUPTED FLOW FACILITIES					
STATE SIGNALIZED ARTERIALS						FREEWAYS					
Lanes	Median	B	C	D	E	Lanes	B	C	D	E	
2	Undivided	*	1,220	1,350	**	4	3,650	5,040	5,950	6,640	
4	Divided	*	2,790	2,890	**	6	5,130	7,250	8,670	9,950	
6	Divided	*	4,300	4,350	**	8	6,600	9,490	11,380	13,270	
Non-State Signalized Roadway Adjustments (Alter corresponding state volumes by the indicated percent) Non-State Signalized Roadways - 10%						Freeway Adjustments Auxiliary Lanes Present in Both Directions + 1,800					
Median & Turn Lane Adjustments						UNINTERRUPTED FLOW HIGHWAYS					
Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors		Rural Undeveloped					
2	Divided	Yes	No	+5%		Lanes	Median	B	C	D	E
2	Undivided	No	No	-20%		2	Undivided	440	820	1,330	2,710
Multi	Undivided	Yes	No	-5%		4	Divided	2,960	4,270	5,290	5,960
Multi	Undivided	No	No	-25%		6	Divided	4,450	6,420	7,930	8,950
			Yes	+5%		Developed Areas					
One-Way Facility Adjustment Multiply the corresponding two-directional volumes in this table by 0.6						Lanes	Median	B	C	D	E
						2	Undivided	980	1,490	2,020	2,710
						4	Divided	2,780	4,020	5,130	5,850
						6	Divided	4,180	6,040	7,710	8,780
BICYCLE MODE² (Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes)						Passing Lane Adjustments Alter LOS B-D volumes in proportion to the passing lane length in the highway segment length					
Rural Undeveloped						Uninterrupted Flow Highway Adjustments					
Paved Shoulder/Bicycle Lane Coverage	B	C	D	E		Lanes	Median	Exclusive left lanes	Adjustment factors		
0-49%	*	120	190	300		2	Divided	Yes	+5%		
50-84%	100	200	310	1,010		Multi	Undivided	Yes	-5%		
85-100%	250	370	1,760	>1,760		Multi	Undivided	No	-25%		
Developed Areas						PEDESTRIAN MODE² (Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes)					
Paved Shoulder/Bicycle Lane Coverage	B	C	D	E		Sidewalk Coverage	B	C	D	E	
0-49%	*	220	460	1,480		0-49%	*	*	220	840	
50-84%	170	430	1,270	>1,760		50-84%	*	120	780	1,390	
85-100%	560	1,760	>1,760	**		85-100%	320	940	1,560	>1,820	

* Values shown are presented as peak hour directional volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the HCM and the Transit Capacity and Quality of Service Manual.

¹ Level of service for the bicycle and pedestrian modes in this table is based on number of vehicles, not number of bicycles or pedestrians using the facility.

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Implementation Office
<https://www.fdot.gov/planning/systems>

TABLE 6
(continued)

Generalized **Peak Hour Two-Way** Volumes for Florida's
Rural Undeveloped Areas and
Developed Areas Less Than 5,000 Population

January 2020

INPUT VALUE ASSUMPTIONS	Uninterrupted Flow Facilities					Interrupted Flow Facilities				
	Freeways	Highways				Arterials	Bicycle	Pedestrian		
		Undeveloped		Developed						
ROADWAY CHARACTERISTICS										
Area type (urban, rural)	rural									
Number of through lanes (both dir.)	4-8	2	4-6	2	4-6	2	4-6	4	4	2
Posted speed (mph)	70	55	55	50	50	45	45	55	45	45
Free flow speed (mph)	75	60	60	55	55	50	50	60	50	50
Auxiliary lanes (n, y)	n									
Median (d, n, nr, r)			d		d	n	r	r	r	n
Terrain (l, r)	l	l	l	l	l	l	l	l	l	l
% no passing zone		20		60						
Exclusive left turn lanes (n, y)		[n]	y	[n]	y	y	y	y	y	y
Exclusive right turn lanes (n, y)						n	n	n	n	n
Facility length (mi)	18	10	10	5	5	1.9	2.2	4	2	2
TRAFFIC CHARACTERISTICS										
Planning analysis hour factor (K)	0.105	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.095
Directional distribution factor (D)	0.55	0.55	0.55	0.55	0.55	0.550	0.550	0.570	0.570	0.550
Peak hour factor (PHF)	0.88	0.88	0.88	0.88	0.88	1.000	1.000	1.000	1.000	1.000
Base saturation flow rate (pcphpl)	2,400	1,700	2,200	1,700	2,200	1,950	1,950	1,950	1,950	1,950
Heavy vehicle percent	12.0	5.0	12.0	5.0	8.0	3.0	3.0	6.0	3.5	3.0
Speed Adjustment Factor (SAF)	0.975		0.975		0.975					
Capacity Adjustment Factor (CAF)	0.968		0.968		0.968					
% left turns						12	12		12	12
% right turns						12	12		12	12
CONTROL CHARACTERISTICS										
Number of signals						5	6	2	4	4
Arrival type (1-6)						3	3	3	5	3
Signal type (a, c, p)						c	c	a	a	a
Cycle length (C)						90	90	60	90	90
Effective green ratio (g/C)						0.44	0.44	0.37	0.44	0.44
MULTIMODAL CHARACTERISTICS										
Paved shoulder/bicycle lane (n, y)								n, 50% y	n, 50% y	n
Outside lane width (n, l, w)								l	l	l
Pavement condition (d, l, u)								l	l	l
Sidewalk (n, y)										n, 50% y
Sidewalk/roadway separation (a, c, w)										l
Sidewalk protective barrier (n, y)										n
LEVEL OF SERVICE THRESHOLDS										
Level of Service	Freeways	Highways								
		Two-Lane ru		Two-Lane rd		Multilane ru		Multilane rd		
	Density	%tsf	ats	%ffs		Density		Density		
B	≤ 14	≤ 50	≤ 55	> 83.3		≤ 14		≤ 14		
C	≤ 22	≤ 65	≤ 50	> 75.0		≤ 22		≤ 22		
D	≤ 29	≤ 80	≤ 45	> 66.7		≤ 29		≤ 29		
E	≤ 36	> 80	≤ 40	> 58.3		≤ 34		≤ 34		
Level of Service	Arterials		Bicycle		Pedestrian					
	Major City/Ce.(ats)		Score		Score					
B	> 31 mph		≤ 2.75		≤ 2.75					
C	> 23 mph		≤ 3.50		≤ 3.50					
D	> 18 mph		≤ 4.25		≤ 4.25					
E	> 15 mph		≤ 5.00		≤ 5.00					

%tsf = Percent time spent following %ffs = Percent of free flow speed ats = Average travel speed ru = Rural undeveloped rd = Rural developed

TABLE 7

Generalized **Peak Hour Directional** Volumes for Florida's
Urbanized Areas

January 2020

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Class I (40 mph or higher posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	830	880	**
2	Divided	*	1,910	2,000	**
3	Divided	*	2,940	3,020	**
4	Divided	*	3,970	4,040	**

Class II (35 mph or slower posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	370	750	800
2	Divided	*	730	1,630	1,700
3	Divided	*	1,170	2,520	2,560
4	Divided	*	1,610	3,390	3,420

Non-State Signalized Roadway Adjustments

(After corresponding state volumes
by the indicated percent.)

Non-State Signalized Roadways -10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
1	Divided	Yes	No	+5%
1	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
-	-	-	Yes	+5%

One-Way Facility Adjustment

Multiply the corresponding directional
volumes in this table by 1.2

BICYCLE MODE²

(Multiply vehicle volumes shown below by number of
directional roadway lanes to determine two-way maximum service
volumes.)

Paved

Shoulder/Bicycle

Lane Coverage	B	C	D	E
0-49%	*	150	390	1,000
50-84%	110	340	1,000	>1,000
85-100%	470	1,000	>1,000	**

PEDESTRIAN MODE³

(Multiply vehicle volumes shown below by number of
directional roadway lanes to determine two-way maximum service
volumes.)

Sidewalk Coverage	B	C	D	E
0-49%	*	*	140	480
50-84%	*	80	440	800
85-100%	200	540	880	>1,000

BUS MODE (Scheduled Fixed Route)³

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	> 5	≥ 4	≥ 3	≥ 2
85-100%	> 4	≥ 3	≥ 2	≥ 1

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Core Urbanized

Lanes	B	C	D	E
2	2,230	3,100	3,740	4,080
3	3,280	4,570	5,620	6,130
4	4,310	6,030	7,490	8,170
5	5,390	7,430	9,370	10,220
6	6,380	8,990	11,510	12,760

Urbanized

Lanes	B	C	D	E
2	2,270	3,100	3,890	4,230
3	3,410	4,650	5,780	6,340
4	4,550	6,200	7,680	8,460
5	5,690	7,760	9,520	10,570

Freeway Adjustments

Auxiliary Lane + 1,000	Ramp Metering + 5%
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UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
1	Undivided	580	890	1,200	1,610
2	Divided	1,800	2,600	3,280	3,730
3	Divided	2,700	3,900	4,920	5,600

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
1	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

¹ Values shown are presented as peak hour directional volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the HCM and the Transit Capacity and Quality of Service Manual.

² Level of service for the bicycle and pedestrian modes in this table is based on number of vehicles, not number of bicycles or pedestrians using the facility.

³ Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Implementation Office
<http://www.fdot.gov/planning/systems>

TABLE 7
(continued)

Generalized Peak Hour Directional Volumes for Florida's
Urbanized Areas

January 2020

INPUT VALUE ASSUMPTIONS	Uninterrupted Flow Facilities				Interrupted Flow Facilities					
					State Arterials				Class I	
	Freeways	Core Freeways	Highways		Class I		Class II		Bicycle	Pedestrian
ROADWAY CHARACTERISTICS										
Area type (urban, rural)	urban	urban								
Number of through lanes (both dir.)	4-10	4-12	2	4-6	2	4-8	2	4-8	4	4
Posted speed (mph)	70	65	50	50	45	50	30	30	45	45
Free flow speed (mph)	75	70	55	55	50	55	35	35	50	50
Auxiliary Lanes (n, y)	n	n								
Median (d, twt, n, nr, r)				d	n	r	n	r	r	r
Terrain (L, r)	l	l	l	l	l	l	l	l	l	l
% no passing zone			80							
Exclusive left turn lane impact (n, y)			[n]	y	y	y	y	y	y	y
Exclusive right turn lanes (n, y)					n	n	n	n	n	n
Facility length (mi)	3	3	5	5	2	2	1.9	1.8	2	2
TRAFFIC CHARACTERISTICS										
Planning analysis hour factor (K)	0.090	0.085	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
Directional distribution factor (D)	0.55	0.56	0.55	0.55	0.550	0.560	0.565	0.560	0.565	0.565
Peak hour factor (PHF)	0.95	0.95	0.95	0.95	1.000	1.000	1.000	1.000	1.000	1.000
Base saturation flow rate (pcphpl)	2,400	2,400	1,700	2,200	1,950	1,950	1,950	1,950	1,950	1,950
Heavy vehicle percent	4.0	4.0	2.0	2.0	1.0	1.0	1.0	1.0	2.5	2.0
Speed Adjustment Factor (SAF)	0.975	0.975		0.975						
Capacity Adjustment Factor (CAF)	0.968	0.968		0.968						
% left turns					12	12	12	12	12	12
% right turns					12	12	12	12	12	12
CONTROL CHARACTERISTICS										
Number of signals					4	4	10	10	4	6
Arrival type (1-6)					3	3	4	4	4	4
Signal type (a, c, p)					c	c	c	c	c	c
Cycle length (C)					120	150	120	120	120	120
Effective green ratio (g/C)					0.44	0.45	0.44	0.44	0.44	0.44
MULTIMODAL CHARACTERISTICS										
Paved shoulder/bicycle lane (n, y)									n, 50%, y	n
Outside lane width (n, l, w)									1	1
Pavement condition (d, l, v)									1	
On-street parking (n, y)										n, 50%, y
Sidewalk (n, y)										1
Sidewalk/roadway separation(a, l, w)										n
Sidewalk protective barrier (n, y)										
LEVEL OF SERVICE THRESHOLDS										
Level of Service	Freeways	Highways		Arterials		Bicycle	Ped	Bus		
	Density	Two-Lane %ffs	Multilane Density	Class I ats	Class II ats	Score	Score	Buses/hr.		
B	≤ 17	> 83.3	≤ 17	> 31 mph	> 22 mph	≤ 2.75	≤ 2.75	≤ 6		
C	≤ 24	> 75.0	≤ 24	> 23 mph	> 17 mph	≤ 3.50	≤ 3.50	≤ 4		
D	≤ 31	> 66.7	≤ 31	> 18 mph	> 13 mph	≤ 4.25	≤ 4.25	< 3		
E	≤ 39	> 58.3	≤ 35	> 13 mph	> 10 mph	≤ 5.00	≤ 5.00	< 2		

% ffs = Percent free flow speed ats = Average travel speed

TABLE 8

**Generalized Peak Hour Directional Volumes for Florida's
Transitioning Areas and
Areas Over 5,000 Not in Urbanized Areas¹**

January 2020

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Class I (40 mph or higher posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	710	800	**
2	Divided	*	1,740	1,820	**
3	Divided	*	2,670	2,740	**

Class II (35 mph or slower posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	330	680	720
2	Divided	*	500	1,460	1,600
3	Divided	*	810	2,280	2,420

Non-State Signalized Roadway Adjustments

(After corresponding state volumes by the indicated percent)

Non-State Signalized Roadways - 10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
1	Divided	Yes	No	+5%
1	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
-	-	-	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding directional volumes in this table by 1.2

BICYCLE MODE²

(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes)

Paved Shoulder/Bicycle Lane Coverage	B	C	D	E
0-49%	*	140	320	1,000
50-84%	100	280	940	>1,000
85-100%	380	1,000	>1,000	**

PEDESTRIAN MODE²

(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes)

Sidewalk Coverage	B	C	D	E
0-49%	*	*	140	480
50-84%	*	80	440	800
85-100%	200	540	880	>1,000

BUS MODE (Scheduled Fixed Route)³

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	≥ 5	≥ 4	≥ 3	≥ 2
85-100%	≥ 4	≥ 3	≥ 2	≥ 1

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Lanes	B	C	D	E
2	2,430	3,180	3,790	3,910
3	3,530	4,670	5,610	5,870
4	4,630	6,170	7,440	7,830
5	5,480	7,310	8,730	9,800

Freeway Adjustments

Auxiliary Lane	Ramp Metering
+ 1,000	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
1	Undivided	560	860	1,160	1,560
2	Divided	1,710	2,470	3,120	3,550
3	Divided	2,560	3,700	4,680	5,320

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
1	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

¹Values shown are presented as peak hour directional volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the HCM and the Traffic Capacity and Quality of Service Manual.

²Level of service for the bicycle and pedestrian modes in this table is based on number of vehicles, not number of bicyclists or pedestrians using the facility.

³Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Implementation Office
<http://www.fdot.gov/planning/systools>

TABLE 8
(continued)

Generalized **Peak Hour Directional** Volumes for Florida's
Transitioning Areas and
Areas Over 5,000 Not In Urbanized Areas.

January 2020

INPUT VALUE ASSUMPTIONS	Uninterrupted Flow Facilities		Interrupted Flow Facilities					
			State Arterials			Class I		
	Freeways	Highways	Class I	Class II		Bicycle	Pedestrian	
ROADWAY CHARACTERISTICS								
Area type (urban, rural)	urban							
Number of through lanes (both dir.)	4-10	2	4-6	2	4-6	2	4-6	4
Posted speed (mph)	70	50	50	45	50	30	30	45
Free flow speed (mph)	75	55	55	50	55	35	35	50
Auxiliary lanes (n, y)	n							
Median (d, n, nr, r)			d	n	y	n	y	r
Terrain (l, r)	l	l	l	l	l	l	l	l
% no passing zone		60						
Exclusive left turn lane impact (n, y)		[n]	y	y	y	y	y	y
Exclusive right turn lanes (n, y)				n	n	n	n	n
Facility length (mi)	6	5	5	1.8	2	2	2	2
TRAFFIC CHARACTERISTICS								
Planning analysis hour factor (K)	0.098	0.090	0.090	0.090	0.090	0.090	0.090	0.090
Directional distribution factor (D)	0.55	0.55	0.55	0.550	0.570	0.570	0.565	0.570
Peak hour factor (PHF)	0.92	0.92	0.92	1.000	1.000	1.000	1.000	1.000
Base saturation flow rate (pcphpl)	2,400	1,700	2,200	1,950	1,950	1,950	1,950	1,950
Heavy vehicle percent	9.0	4.0	4.0	2.0	3.0	2.0	3.0	3.0
Speed Adjustment Factor (SAF)	0.975		0.975					
Capacity Adjustment Factor (CAF)	0.968		0.968					
% left turns				12	12	12	12	12
% right turns				12	12	12	12	12
CONTROL CHARACTERISTICS								
Number of signals				5	4	10	10	4
Arrival type (1-6)				4	3	4	4	4
Signal type (a, c, p)				c	c	c	c	c
Cycle length (C)				120	150	120	150	120
Effective green ratio (g/C)				0.44	0.45	0.44	0.45	0.44
MULTIMODAL CHARACTERISTICS								
Paved shoulder/bicycle lane (n, y)							n, 50%, y	n
Outside lane width (n, l, w)							l	l
Pavement condition (d, b, u)							l	
On-street parking (n, y)							n	n
Sidewalk (n, y)								n, 50%, y
Sidewalk/roadway separation (a, l, w)								l
Sidewalk protective barrier (n, y)								n
LEVEL OF SERVICE THRESHOLDS								
Level of Service	Freeways	Highways		Arterials		Bicycle	Ped	Bus
	Density	Two-Lane %ffs	Multilane Density	Class I ats	Class II ats	Score	Score	Buses/hr
B	≤ 17	> 83.3	≤ 17	> 31 mph	> 22 mph	≤ 2.75	≤ 2.75	≤ 6
C	≤ 24	> 75.0	≤ 24	> 23 mph	> 17 mph	≤ 3.50	≤ 3.50	≤ 4
D	≤ 31	> 66.7	≤ 31	> 18 mph	> 13 mph	≤ 4.25	≤ 4.25	< 3
E	≤ 39	> 58.3	≤ 35	> 15 mph	> 10 mph	≤ 5.00	≤ 5.00	< 2

% ffs = Percent free flow speed ats = Average travel speed

TABLE 9

**Generalized Peak Hour Directional Volumes for Florida's
Rural Undeveloped Areas and
Developed Areas Less Than 5,000 Population¹**

January 2020

INTERRUPTED FLOW FACILITIES						UNINTERRUPTED FLOW FACILITIES					
STATE SIGNALIZED ARTERIALS						FREEWAYS					
Lanes	Median	B	C	D	E	Lanes	B	C	D	E	
1	Undivided	*	670	740	**	2	2,010	2,770	3,270	3,650	
2	Divided	*	1,530	1,580	**	3	2,820	3,990	4,770	5,470	
3	Divided	*	2,560	2,400	**	4	3,630	5,220	6,260	7,300	
Non-State Signalized Roadway Adjustments						Freeway Adjustments					
(Alter corresponding state volumes by the indicated percent)						Auxiliary Lane					
Non-State Signalized Roadways - 10%						+ 1,000					
Median & Turn Lane Adjustments						UNINTERRUPTED FLOW HIGHWAYS					
Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors		Rural Undeveloped					
1	Divided	Yes	No	+5%		Lanes	Median	B	C	D	E
1	Undivided	No	No	-20%		1	Undivided	240	450	730	1,490
Multi	Undivided	Yes	No	-5%		2	Divided	1,630	2,350	2,910	3,280
Multi	Undivided	No	No	-25%		3	Divided	2,450	3,530	4,360	4,920
-	-	-	Yes	+5%		Developed Areas					
One-Way Facility Adjustment						Lanes	Median	B	C	D	E
Multiply the corresponding directional volumes in this table by 1.2						1	Undivided	540	820	1,110	1,490
						2	Divided	1,530	2,210	2,820	3,220
						3	Divided	2,300	3,320	4,240	4,830
BICYCLE MODE²						Passing Lane Adjustments					
(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes)						Alter LOS B-D volumes in proportion to the passing lane length to the highway segment length					
Rural Undeveloped						Uninterrupted Flow Highway Adjustments					
Paved Shoulder/Bicycle Lane Coverage	B	C	D	E		Lanes	Median	Exclusive left lanes	Adjustment factors		
0-49%	*	70	110	170		1	Divided	Yes	+5%		
50-84%	60	120	180	580		Multi	Undivided	Yes	-5%		
85-100%	140	210	1,000	>1,000		Multi	Undivided	No	-25%		
Developed Areas						¹ Values shown are presented as peak hour directional volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the HCM and the Transit Capacity and Quality of Service Manual. ² Level of service for the bicycle and pedestrian modes in this table is based on number of vehicles, not number of bicyclists or pedestrians using the facility. ³ Cannot be achieved using table input value defaults. ⁴ Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults. Source: Florida Department of Transportation Systems Implementation Office http://www.fdot.com/planning/systems					
Paved Shoulder/Bicycle Lane Coverage	B	C	D	E							
0-49%	*	120	260	840							
50-84%	100	240	720	1,000							
85-100%	320	1,000	>1,000	**							
PEDESTRIAN MODE²											
(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes)											
Sidewalk Coverage	B	C	D	E							
0-49%	*	*	120	460							
50-84%	*	80	430	770							
85-100%	180	520	860	>1,000							

TABLE 9
(continued)

Generalized **Peak Hour Directional** Volumes for Florida's
Rural Undeveloped Areas and
Developed Areas Less Than 5,000 Population

January 2020

INPUT VALUE ASSUMPTIONS	Uninterrupted Flow Facilities					Interrupted Flow Facilities				
	Freeways	Highways				Arterials	Bicycle	Pedestrian		
		Undeveloped		Developed						
ROADWAY CHARACTERISTICS										
Area type (urban, rural)	rural									
Number of through lanes (both dir.)	4-8	2	4-6	2	4-6	2	4-6	4	4	2
Posted speed (mph)	70	55	55	50	50	45	45	55	45	45
Free flow speed (mph)	75	60	60	55	55	50	50	60	50	50
Auxiliary lanes (n, y)	n									
Median (d, n, nr, r)			d		d	n	r	r	r	n
Terrain (L, r)	l	l	l	l	l	l	l	l	l	l
% no passing zone		20		60						
Exclusive left turn lanes (n, y)		[n]	y	[n]	y	y	y	y	y	y
Exclusive right turn lanes (n, y)						n	n	n	n	n
Facility length (mi)	18	10	10	5	5	1.9	2.2	4	2	2
TRAFFIC CHARACTERISTICS										
Planning analysis hour factor (K)	0.105	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.095
Directional distribution factor (D)	0.55	0.55	0.55	0.55	0.55	0.550	0.550	0.570	0.570	0.550
Peak hour factor (PHF)	0.88	0.88	0.88	0.88	0.88	1.000	1.000	1.000	1.000	1.000
Base saturation flow rate (pc/hpl)	2,400	1,700	2,200	1,700	2,200	1,950	1,950	1,950	1,950	1,950
Heavy vehicle percent	12.0	5.0	12.0	5.0	8.0	3.0	3.0	6.0	3.5	3.0
Speed Adjustment Factor (SAF)	0.975		0.975		0.975					
Capacity Adjustment Factor (CAF)	0.968		0.968		0.968					
% left turns						12	12		12	12
% right turns						12	12		12	12
CONTROL CHARACTERISTICS										
Number of signals						5	6	2	4	4
Arrival type (1-6)						3	3	3	3	3
Signal type (a, c, p)						c	c	a	a	a
Cycle length (C)						90	90	60	90	90
Effective green ratio (g/C)						0.44	0.44	0.37	0.44	0.44
MULTIMODAL CHARACTERISTICS										
Paved shoulder/bicycle lane (n, y)								n, 50% y	n, 50% y	n
Outside lane width (n, l, w)								l	l	l
Pavement condition (d, t, u)								l	l	
Sidewalk (n, y)										n, 50% y
Sidewalk/roadway separation (a, l, w)										l
Sidewalk protective barrier (n, y)										n
LEVEL OF SERVICE THRESHOLDS										
Level of Service	Freeways	Highways					Arterials	Bicycle	Pedestrian	
		Two-Lane ru		Two-Lane rd		Multilane ru				
		Density	%tsf	ats	%fts	Density				
B	≤ 14	≤ 50	≤ 55	≤ 55	> 83.3	≤ 14		≤ 2.75		
C	≤ 22	≤ 65	≤ 50	≤ 50	> 75.0	≤ 22		≤ 3.50		
D	≤ 29	≤ 80	≤ 45	≤ 45	> 66.7	≤ 29		≤ 4.25		
E	≤ 36	> 80	≤ 40	≤ 40	> 58.3	≤ 34		≤ 5.00		
Level of Service	Arterials		Bicycle		Pedestrian					
	Major City/Co. (ats)		Score		Score					
B	> 31 mph		≤ 2.75		≤ 2.75					
C	> 23 mph		≤ 3.50		≤ 3.50					
D	> 18 mph		≤ 4.25		≤ 4.25					
E	> 15 mph		≤ 5.00		≤ 5.00					

%tsf = Percent time spent following %fts = Percent of free flow speed ats = Average travel speed ru = Rural undeveloped rd = Rural developed

ITE TRIP GENERATION WITH THE MINI-WAREHOUSE



LINCKS & ASSOCIATES, INC.

PERIOD SETTING

Analysis Name :	New Analysis	
Project Name :	Sunrise Alt	No :
Date:	1/18/2023	City:
State/Province:		Zip/Postal Code:
Country:		Client Name:
Analyst's Name:		Edition:

Trip Generation Manual 11.1
Ed

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
151 - Mini-Warehouse (General Urban/Suburban)	1000 Sq. Ft. GFA	40	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Average 0.09	2 50%	2 50%	4

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
151 - Mini-Warehouse	0 %	2	0 %	2

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
151 - Mini-Warehouse	4	0	0	4

ITE DEVIATION DETAILS

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.

Landuse No deviations from ITE.

Methods No deviations from ITE.

External Trips 151 - Mini-Warehouse (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

SUMMARY

Total Entering	2
Total Exiting	2
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	0
Total Exiting Internal Capture Reduction	0
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	2
Total Exiting Non-Pass-by Trips	2

PERIOD SETTING

Analysis Name :	New Analysis	No :	
Project Name :	Sunrise Alt	City:	
Date:	1/18/2023	Zip/Postal Code:	
State/Province:		Client Name:	
Country:		Edition:	Trip Generation Manual 11.1
Analyst's Name:			Ed

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
151 - Mini-Warehouse (General Urban/Suburban)	1000 Sq. Ft. GFA	40	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Average 0.15	3 50%	3 50%	6

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
151 - Mini-Warehouse	0 %	3	0 %	3

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
151 - Mini-Warehouse	6	0	0	6

ITE DEVIATION DETAILS

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.

Landuse No deviations from ITE.

Methods No deviations from ITE.

External Trips 151 - Mini-Warehouse (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

SUMMARY

Total Entering	3
Total Exiting	3
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	0
Total Exiting Internal Capture Reduction	0
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	3
Total Exiting Non-Pass-by Trips	3

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:				Organization:	
Project Location:				Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ¹		
	ITE LUCs ²	Quantity	Units	Total	Entering	Exiting
Office	710	50,000		92	81	11
Retail	820	325,000		325	202	123
Restaurant						
Cinema/Entertainment						
Residential	210,221	4,800		3,162	815	2,347
Hotel	320	75		26	10	16
All Other Land Uses ³				0		
				3,605	1,108	2,497

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix ¹						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	0	0	0	0
Retail	3		0	0	16	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	23	0	0		0
Hotel	2	2	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	3,605	1,108	2,497
Internal Capture Percentage	3%	5%	2%
External Vehicle-Trips ⁵	3,503	1,057	2,446
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	9%	27%
Retail	14%	15%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	1%
Hotel	0%	25%

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 5-B (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁶Person-Trips

⁷Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	0
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	81	81	1.00	11	11
Retail	1.00	202	202	1.00	123	123
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	815	815	1.00	2347	2347
Hotel	1.00	10	10	1.00	16	16

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	7	0	0	0
Retail	36		16	0	17	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	47	23	469	0		0
Hotel	12	2	•	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		65	0	0	0	0
Retail	3		0	0	16	0
Restaurant	11	16		0	41	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	34	0	0		0
Hotel	2	8	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	7	74	81	74	0	0
Retail	28	174	202	174	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	16	799	815	799	0	0
Hotel	0	10	10	10	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	3	8	11	8	0	0
Retail	19	104	123	104	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	25	2322	2347	2322	0	0
Hotel	4	12	16	12	0	0
All Other Land Uses ⁵	0	0	0	0	0	0

¹ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A
² Person-Trips
³ Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator
⁴ Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:			Organization:
Project Location:			Performed By:
Scenario Description:			Date:
Analysis Year:			Checked By:
Analysis Period:	PM Street Peak Hour		Date:

Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	710	50,000		93	16	77
Retail	820	325,000		1,319	633	686
Restaurant						
Cinema/Entertainment				0		
Residential	270,221	4,800		4,182	2,630	1,552
Hotel	320	75		29	16	13
All Other Land Uses ²				0		
				5,623	3,295	2,328

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		15	0	0	2	0
Retail	5		0	0	178	3
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	9	63	0	0		2
Hotel	0	2	0	0	0	

	Total	Entering	Exiting
All Person-Trips	5,623	3,295	2,328
Internal Capture Percentage	10%	6%	12%
External Vehicle-Trips ⁵	5,065	3,016	2,049
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁷	0	0	0

Land Use	Entering Trips	Exiting Trips
Office	88%	22%
Retail	13%	27%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	7%	5%
Hotel	31%	15%

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

⁶Person-Trips

⁷Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	0
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (C): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	16	16	1.00	77	77
Retail	1.00	633	633	1.00	686	686
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	2630	2630	1.00	1552	1552
Hotel	1.00	16	16	1.00	13	13

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		15	3	0	2	0
Retail	14		199	27	178	34
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	62	652	326	0		47
Hotel	0	2	9	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		51	0	0	105	0
Retail	5		0	0	1210	3
Restaurant	5	317		0	421	11
Cinema/Entertainment	1	25	0		105	0
Residential	9	63	0	0		2
Hotel	0	13	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	3 14	2	16	2	0	0
Retail	80	553	633	553	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	180	2450	2630	2450	0	0
Hotel	5	11	16	11	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	17	60	77	60	0	0
Retail	186	500	686	500	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	187 24	1478	1552	1478	0	0
Hotel	2	11	13	11	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P
² Person-Trips
³ Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator
⁴ Indicates computation that has been rounded to the nearest whole number.

ITE TRIP GENERATION TABLE
WITH WAREHOUSE
(TABLES A-1 AND A-2)





TABLE A-1
AM PEAK HOUR TRIP GENERATION

Land Use	ITE LUC	Size	AM Peak Hour Trip Ends (1)			Internal Trip Ends (2)			Passerby Trip Ends (3)			New External AM Peak Hour Trip Ends		
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Single Family	210	4,200 DU's	764	2,176	2,940	15	24	39	0	0	0	749	2,152	2,901
Multi-Family	221	600 DU's	51	171	222	1	2	3	0	0	0	50	169	219
Motel	320	75 Rooms	10	16	26	0	5	5	0	0	0	10	11	21
Retail	820	325,000 SF	202	123	325	30	20	50	33	20	53	139	83	222
Office	710	50,000 SF	81	11	92	8	3	11	0	0	0	73	8	81
Warehouse	150	40,000 SF	22	6	28	2	2	4	0	0	0	20	4	24
Total			1,130	2,503	3,633	56	56	112	33	20	53	1,041	2,427	3,468

(1) Source - ITE Trip Generation Manual, 11th Edition.

(2) Source - ITE Trip Generation Handbook, 3rd Edition. (NCHRP 684)

(3) Source - ITE Trip Generation Manual, 11th Edition.

• Passerby Trips

Retail - 19%

In - $(202-30) \times 0.19 = 33$

Out - $(123-20) \times 0.19 = 20$



TABLE A-2

PM PEAK HOUR TRIP GENERATION

Land Use	ITE LUC	Size	PM Peak Hour Trip Ends (1)			Internal Trip Ends (2)			Passerby Trip Ends (3)			New External PM Peak Hour Trip Ends		
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Single Family	210	4,200 DU's	2,487	1,461	3,948	170	58	228	0	0	0	2,317	1,403	3,720
Multi-Family	221	600 DU's	143	91	234	10	4	14	0	0	0	133	87	220
Motel	320	75 Rooms	16	13	29	5	2	7	0	0	0	11	11	22
Retail	820	325,000 SF	633	686	1,319	85	189	274	104	94	198	444	403	847
Office	710	50,000 SF	16	77	93	3	17	20	0	0	0	13	60	73
Warehouse	150	40,000 SF	<u>9</u>	<u>22</u>	<u>31</u>	<u>2</u>	<u>5</u>	<u>7</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>7</u>	<u>17</u>	<u>24</u>
Total			3,304	2,350	5,654	275	275	550	104	94	198	2,925	1,981	4,906

(1) Source - ITE Trip Generation Manual, 11th Edition.

(2) Source - ITE Trip Generation Handbook, 3rd Edition. (NCHRP 684)

(3) Source - ITE Trip Generation Manual, 11th Edition.

• Passerby Trips

Retail - 19%

$$\text{In} - (633-85) \times 0.19 = 104$$

$$\text{Out} - (686-189) \times 0.19 = 94$$

• Passerby traffic should not exceed 10% of the adjacent street background traffic

$$2,625 \times 0.10 = 262 > 198$$

(a) PM peak hour background traffic at the intersection of Cortez Blvd and Parkland Ave

TRAFFIC COUNTS





National Data & Surveying Services

Site Code: **22-120304-001**

Date: **6/21/2022**

Weather: **Sunny**

City: **Brooksville**

County: **Hernando**

Count Times: **16:00 – 18:00**

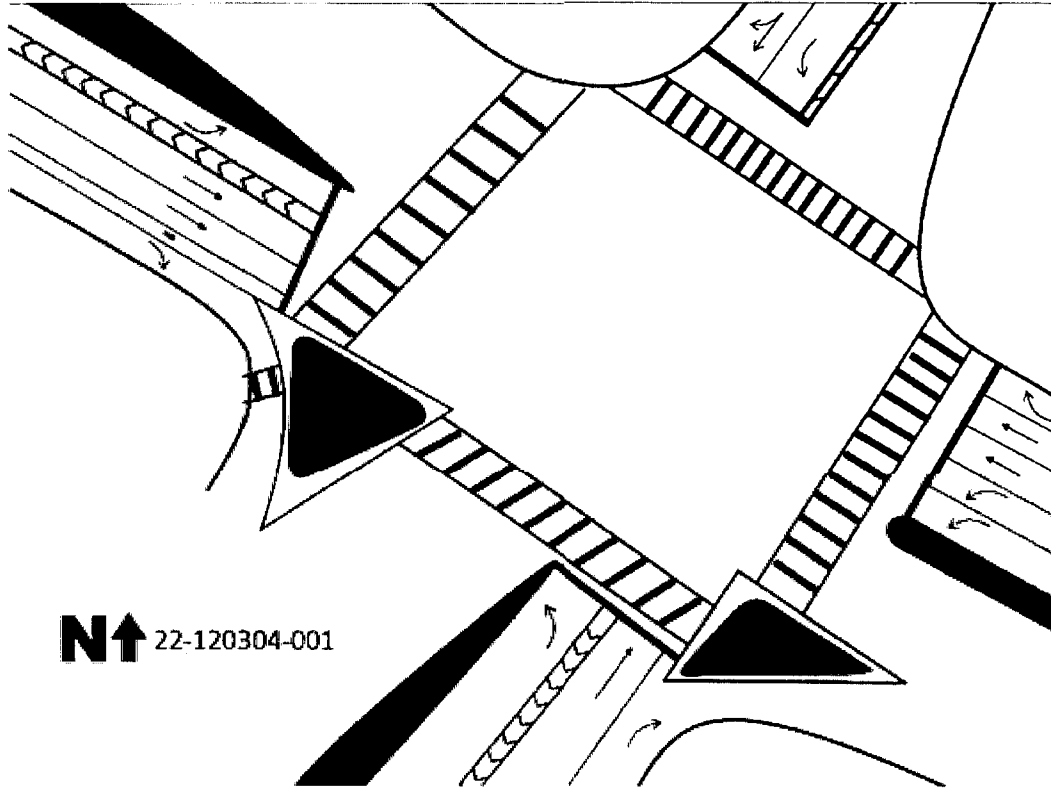
Control: **Signalized**

Phase	1	2	3
NT/ST	00:28	00:27	00:25
WL	00:17	-	-
WT/WL	00:25	00:44	00:36
WT/ET	00:23	00:20	00:23



N/S Street: **SR 50/Cortez Blvd/Jasmine Dr**

Speed: **35 MPH**

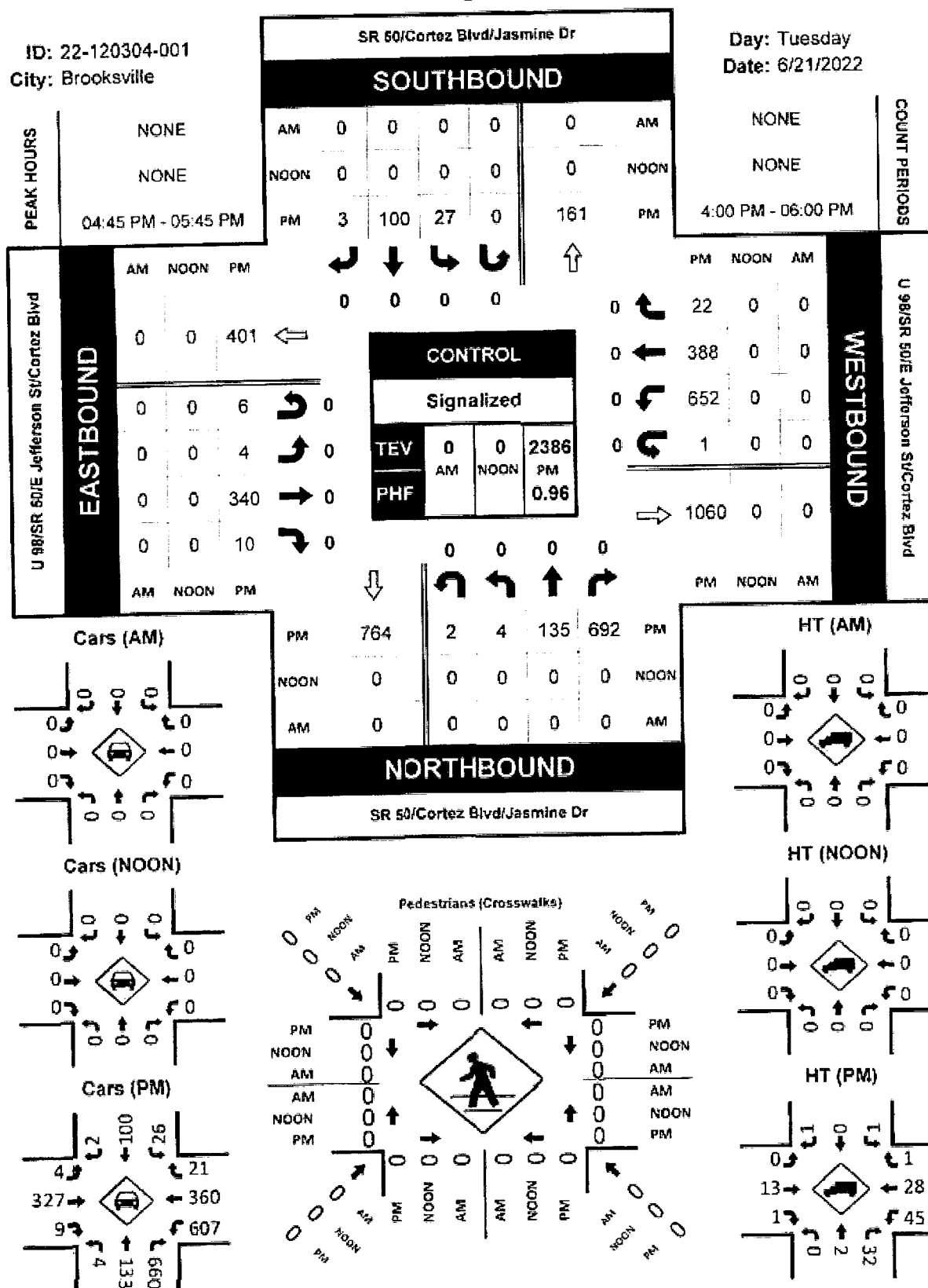


E/W Street: **U 98/SR 50/E Jefferson St/Cortez Blvd**

Speed: **45 MPH**

ID: 22-120304-001
City: Brooksville

Day: Tuesday
Date: 6/21/2022





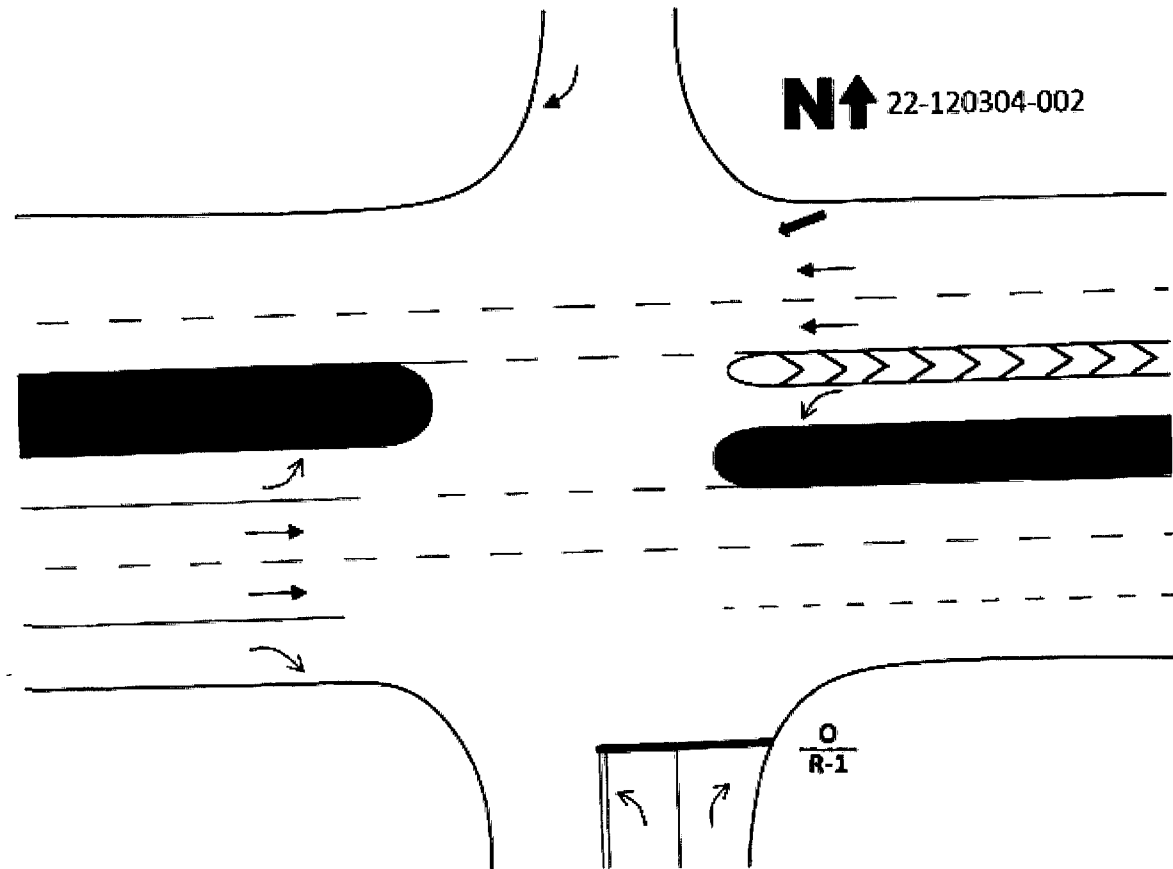
National Data & Surveying Services

Site Code: 22-120304-002
Date: 6/21/2022
Weather: Sunny
City: Brooksville
County: Hernando
Count Times: 16:00 - 18:00
Control: 1-Way Stop(NB)



N/S Street: Lockhart Rd

Speed: 55 MPH



E/W Street: US 98/SR 50/Cortez Blvd

Speed: 60 MPH

Lockhart Rd & US 98/SR 50/Cortez Blvd

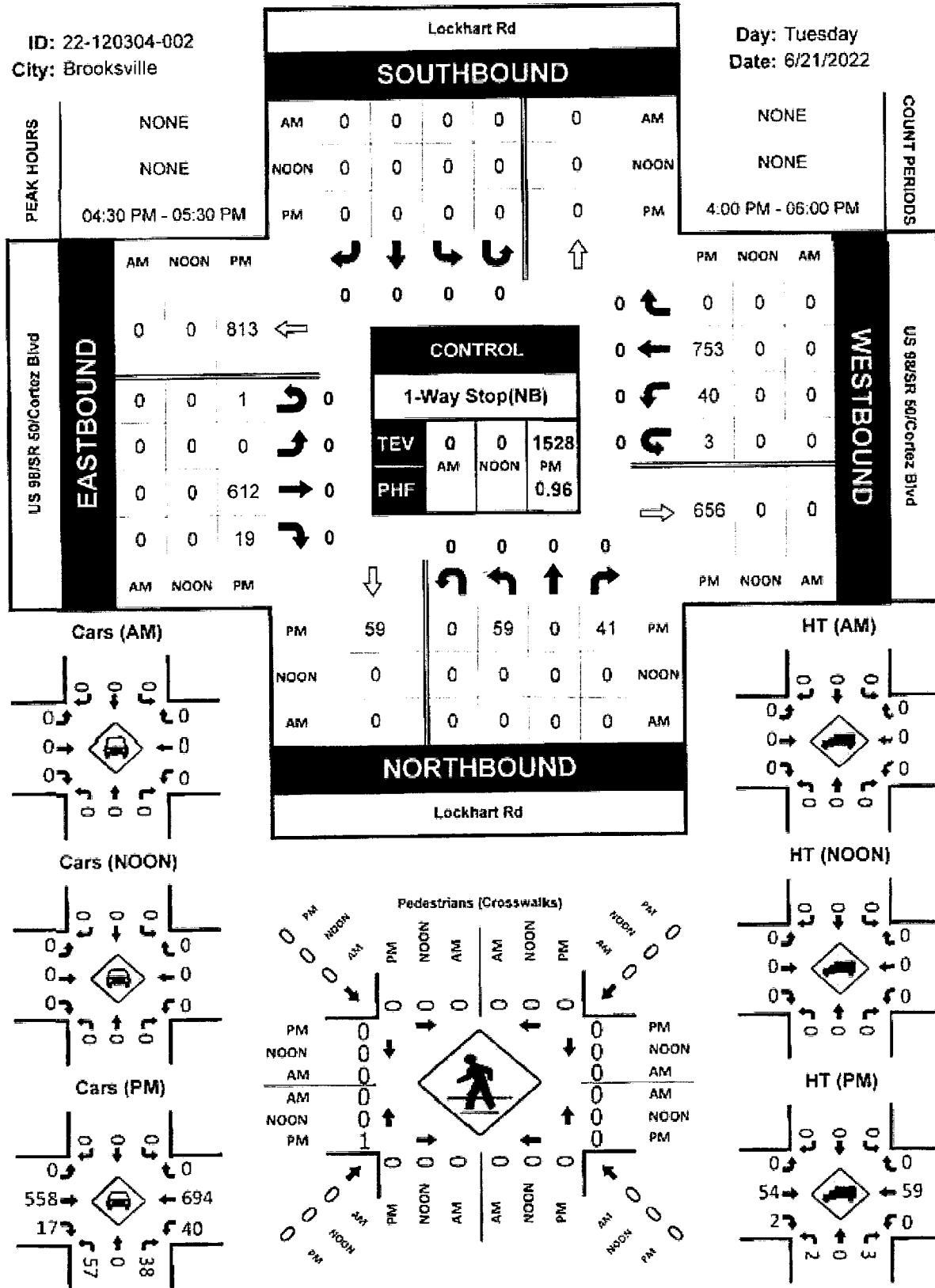
Peak Hour Turning Movement Count

ID: 22-120304-002

City: Brooksville

Day: Tuesday

Date: 6/21/2022





National Data & Surveying Services

Site Code: 22-120304-003

Date: 6/21/2022

Weather: Sunny

City: Brooksville

County: Hernando

Count Times: 16:00 – 18:00

Control: Signalized

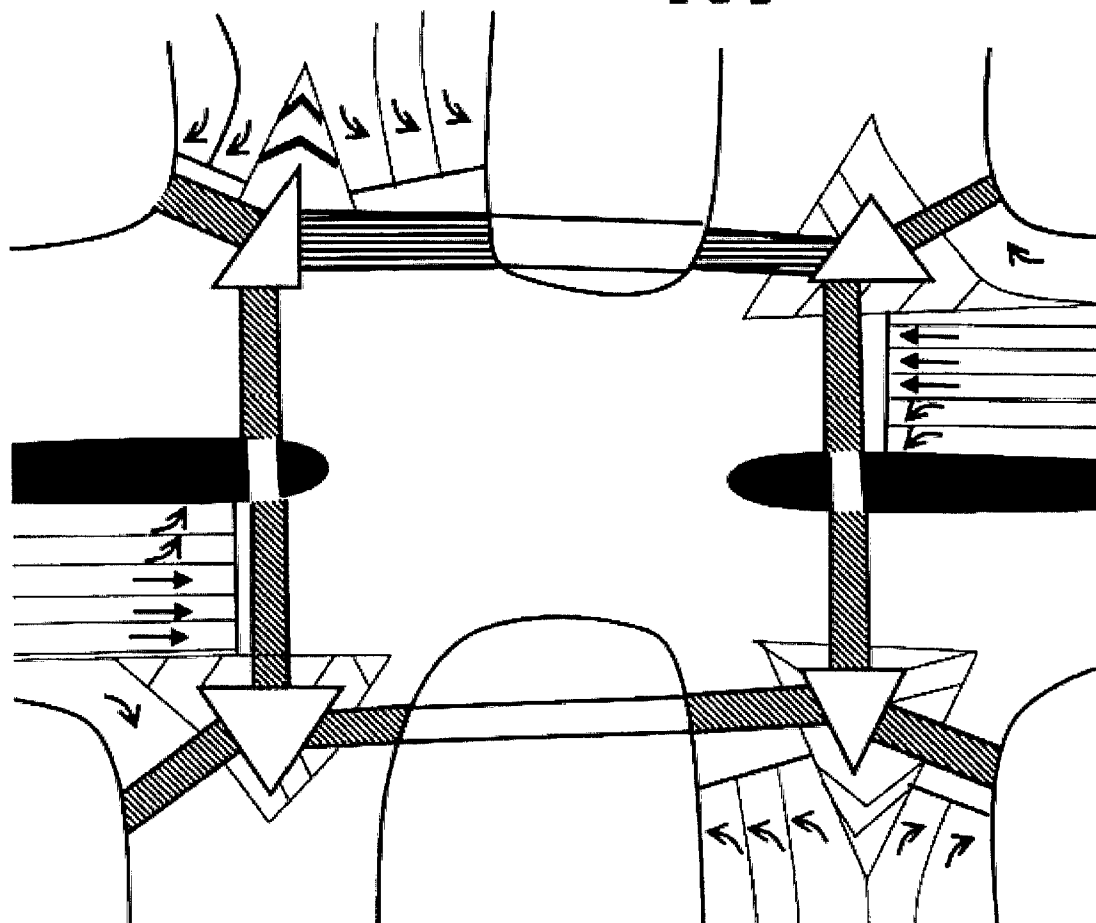
Phase	1	2	3
NL/NR	00:21	00:25	00:28
SL/SR	00:28	00:30	00:38
EL/WL	00:24	00:34	00:24
ET/WT	00:50	00:40	00:47



N/S Street: I-75/SR 93 NB & SB Ramps

Speed: 45 MPH

N↑ 22-120304-003



E/W Street: US 98/SR 50/Cortez Blvd

Speed: 60 MPH

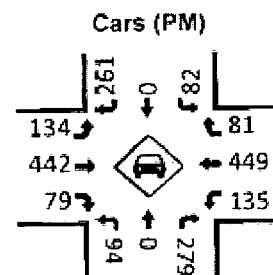
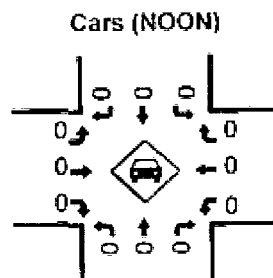
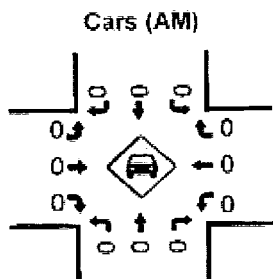
I-75/SR 93 NB & SB Ramps & US 98/SR 50/Cortez Blvd

Peak Hour Turning Movement Count

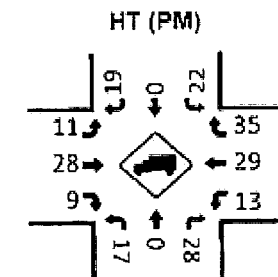
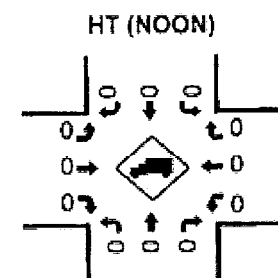
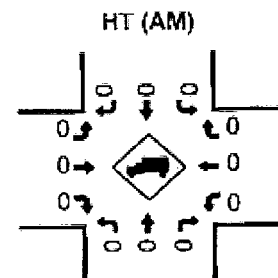
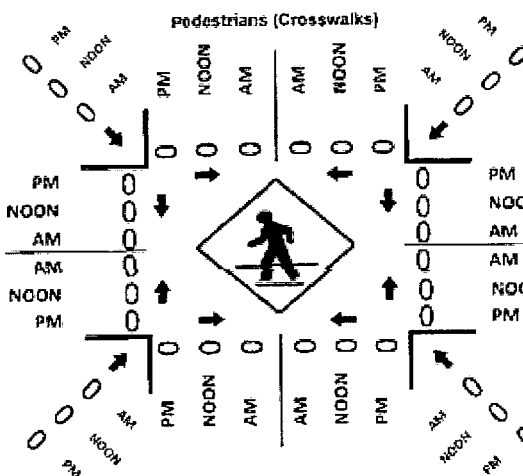
ID: 22-120304-003
City: Brooksville

Day: Tuesday
Date: 6/21/2022

PEAK HOURS		I-75/SR 93 NB & SB Ramps										COUNT PERIODS	
NONE		SOUTHBOUND										NONE	
NONE		AM	0	0	0	0	0	AM	NONE				NOON
04:45 PM - 05:45 PM		NOON	0	0	0	0	0	NOON	NONE				PM
		PM	280	0	104	0	261	PM	4:00 PM - 06:00 PM				
		AM	NOON	PM					PM	NOON	AM		
		0	0	869					0	116	0		
		0	0	0					0	478	0		
		0	0	145					0	148	0		
		0	0	470					0	0	0		
		0	0	88					881	0	0		
		AM	NOON	PM					PM	NOON	AM		



PEAK HOURS		I-75/SR 93 NB & SB Ramps										COUNT PERIODS	
NONE		NORTHBOUND										NONE	
NONE		AM	0	0	0	0	0	AM	NONE				NOON
NONE		NOON	0	0	0	0	0	NOON	NONE				PM
NONE		PM	237	1	111	0	307	PM	4:00 PM - 06:00 PM				
		AM	NOON	PM					PM	NOON	AM		
		0	0	0					0	0	0		
		0	0	0					0	0	0		
		0	0	0					0	0	0		
		0	0	0					0	0	0		
		AM	NOON	PM					PM	NOON	AM		





National Data & Surveying Services

Site Code: 22-120304-004

Date: 6/21/2022

Weather: Sunny

City: Brooksville

County: Hernando

Count Times: 16:00 – 18:00

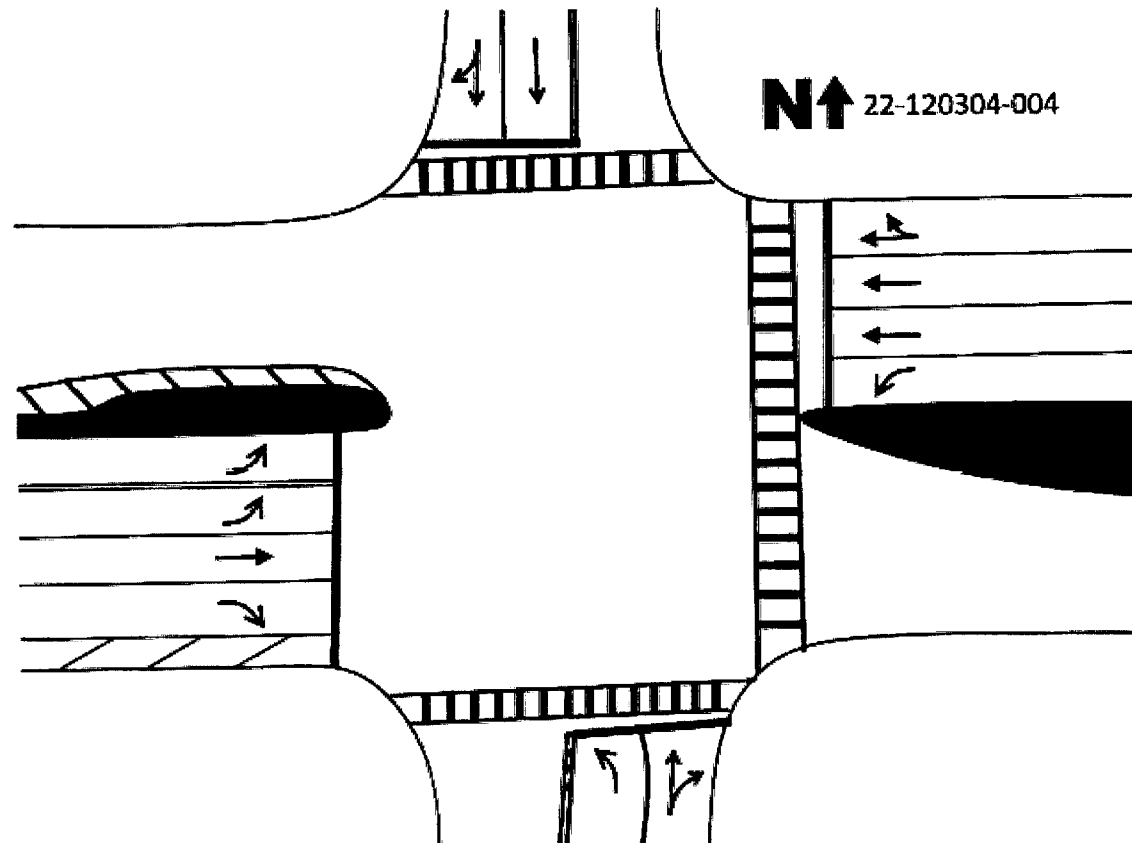
Control: Signalized

Phase	1	2	3
NT/NL	00:38	-	-
NL/SL	-	00:25	00:24
ET/EL	00:22	-	-
ET/WT	00:53	00:40	00:41



N/S Street: Bronson Blvd/Windmere Rd

Speed: N/A



E/W Street: US 98/SR 50/Cortez Blvd

Speed: 45 MPH

Bronson Blvd/Windmere Rd & US 98/SR 50/Cortez Blvd

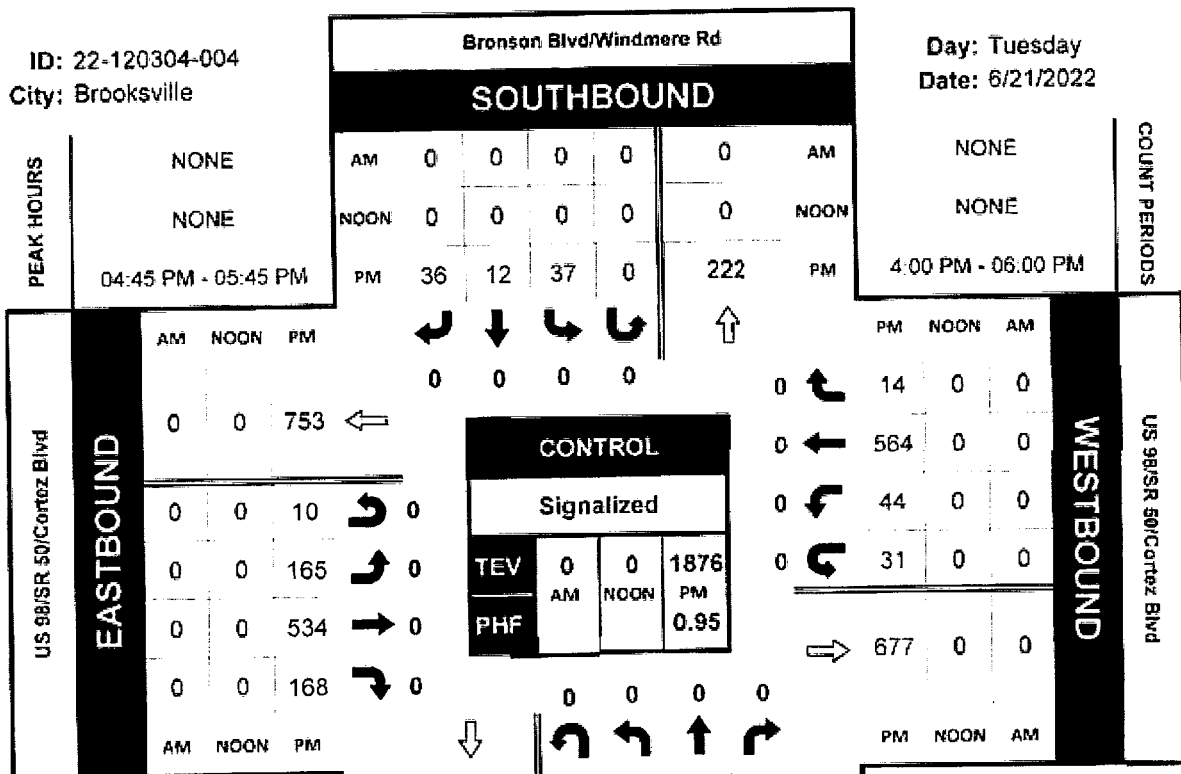
Peak Hour Turning Movement Count

ID: 22-120304-004

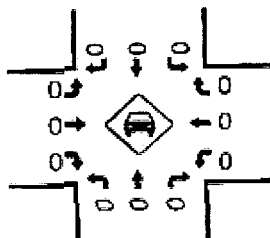
City: Brooksville

Day: Tuesday

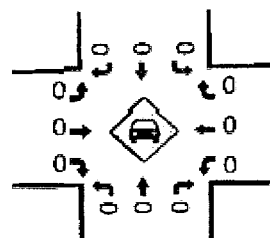
Date: 6/21/2022



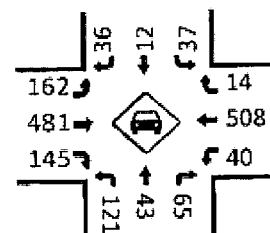
Cars (AM)



Cars (NOON)

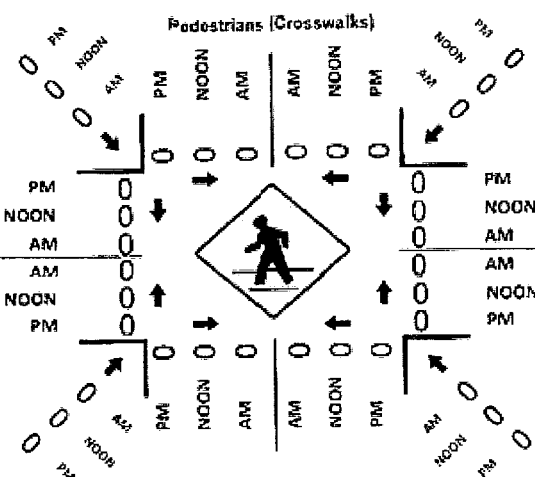


Cars (PM)

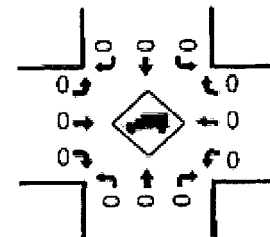


NORTHBOUND

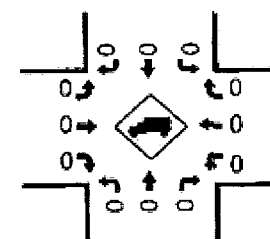
Bronson Blvd/Windmere Rd



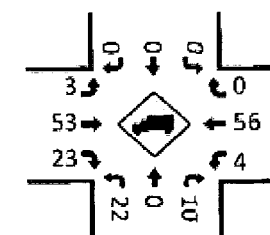
HT (AM)



HT (NOON)



HT (PM)





National Data & Surveying Services

Site Code: 22-120304-005

Date: 6/21/2022

Weather: Sunny

City: Brooksville

County: Hernando

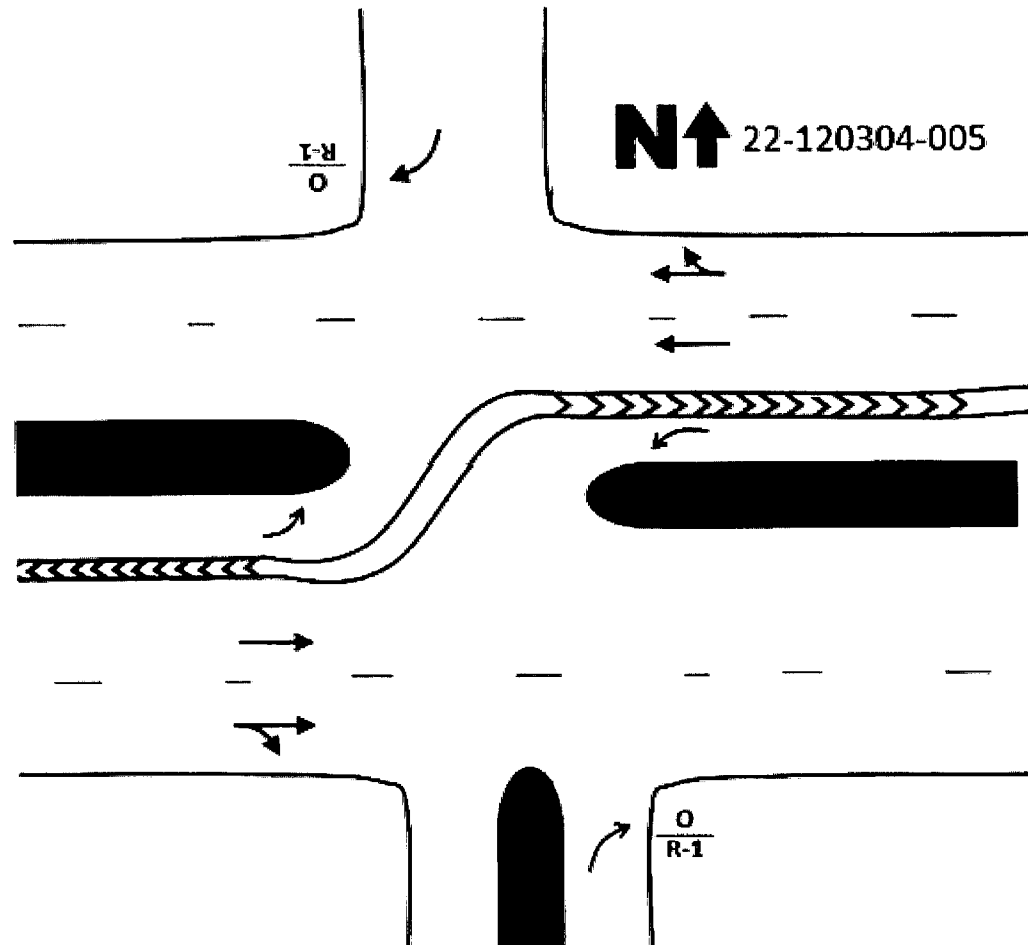
Count Times: 16:00 – 18:00

Control: 2-Way Stop(NB/SB)



N/S Street: Parkland Ave

Speed: 30 MPH



E/W Street: US 98/SR 50/Cortez Blvd/Parkland Ave

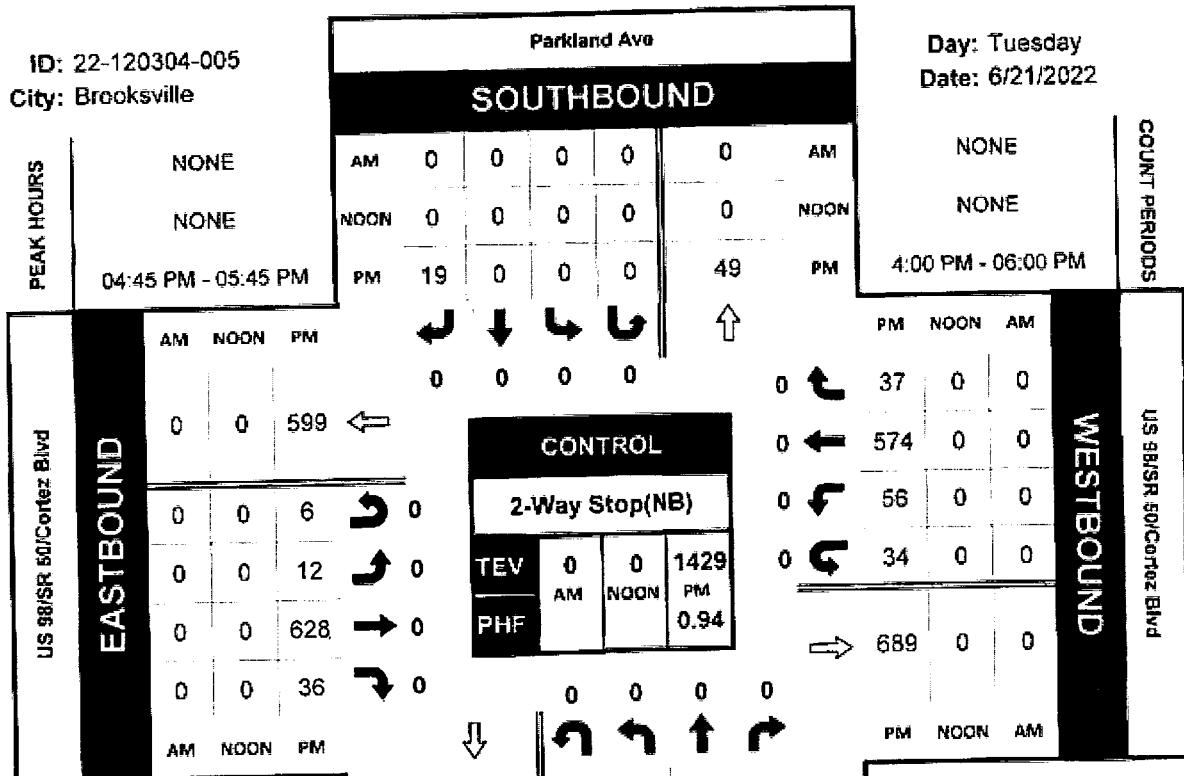
Speed: 45 MPH

Parkland Ave & US 98/SR 50/Cortez Blvd

Peak Hour Turning Movement Count

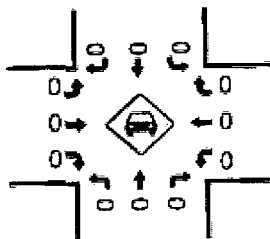
ID: 22-120304-005
City: Brooksville

Day: Tuesday
Date: 6/21/2022

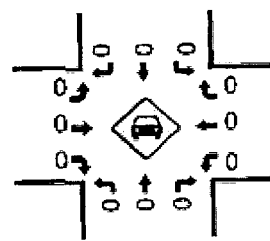


CONTROL			
2-Way Stop(NB)			
TEV	0	0	1429
PHF	AM	NOON	PM
			0.94

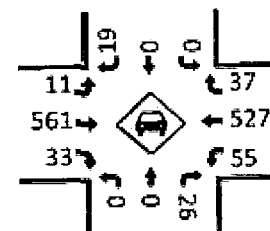
Cars (AM)



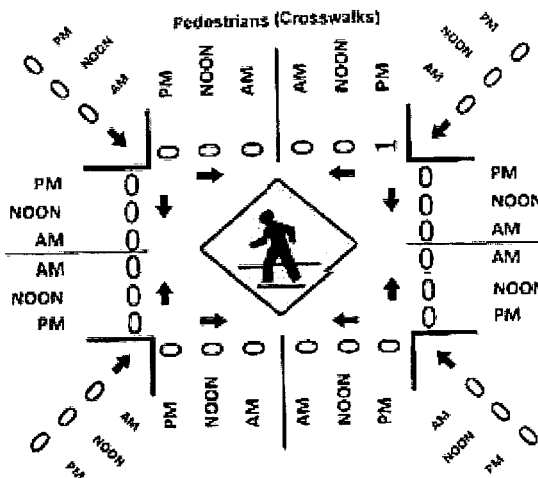
Cars (NOON)



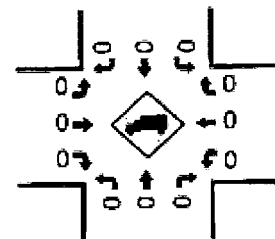
Cars (PM)



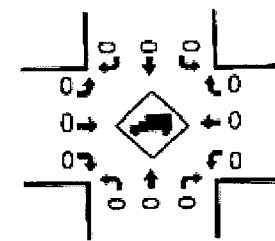
NORTHBOUND



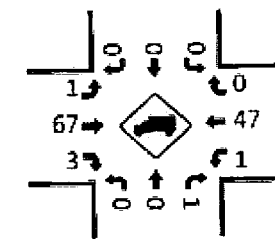
HT (AM)



HT (NOON)



HT (PM)





National Data & Surveying Services

Site Code: 22-120304-006

Date: 6/21/2022

Weather: Sunny

City: Brooksville

County: Hernando

Count Times: 16:00 – 18:00

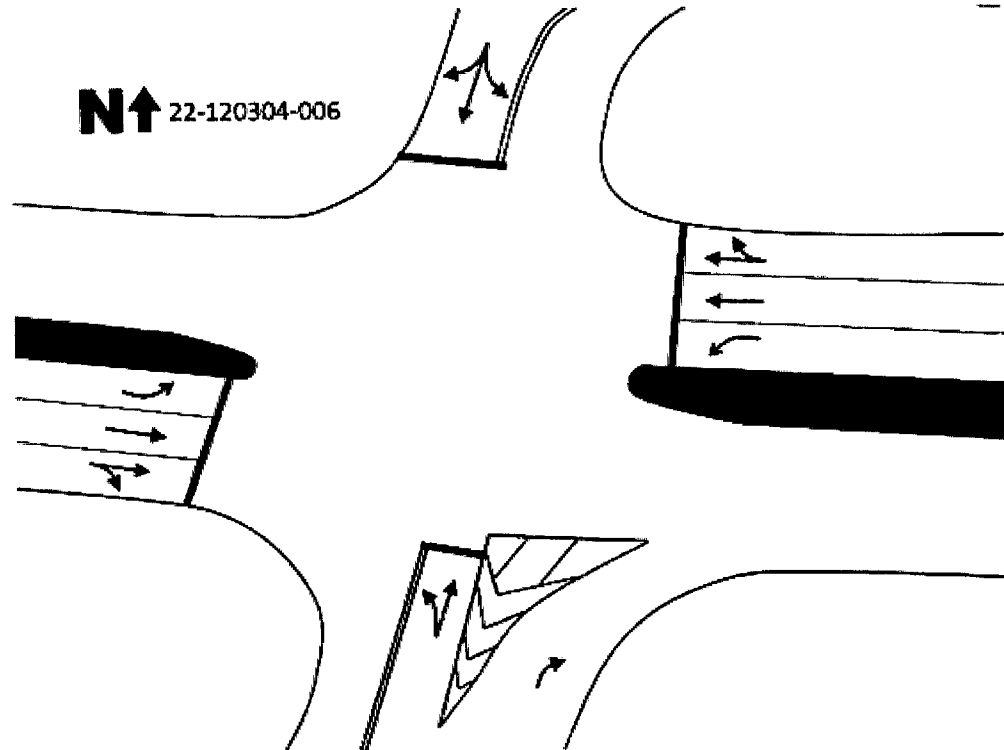
Control: Signalized

Phase	1	2	3
NL	00:33	00:19	00:45
ET/WT	01:13	01:17	00:56



N/S Street: Kettering Rd/Croom Rital Rd

Speed: 55 MPH



E/W Street: US 98/SR 50/Cortez Blvd

Speed: 50 MPH

ID: 22-120304-006
City: Brooksville

Day: Tuesday
Date: 6/21/2022

Cars (AM)

Cars (NOON)

Cars {PM}

PM	61	0	57	2	43	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

NORTHBOUND

Kettering Rd/Croom Rital Rd

Pedestrians (Crosswalks)

HT (AM)

HT (NOON)

HT (PM)



National Data & Surveying Services

Site Code: 22-120304-007

Date: 6/21/2022

Weather: Sunny

City: Brooksville

County: Hernando

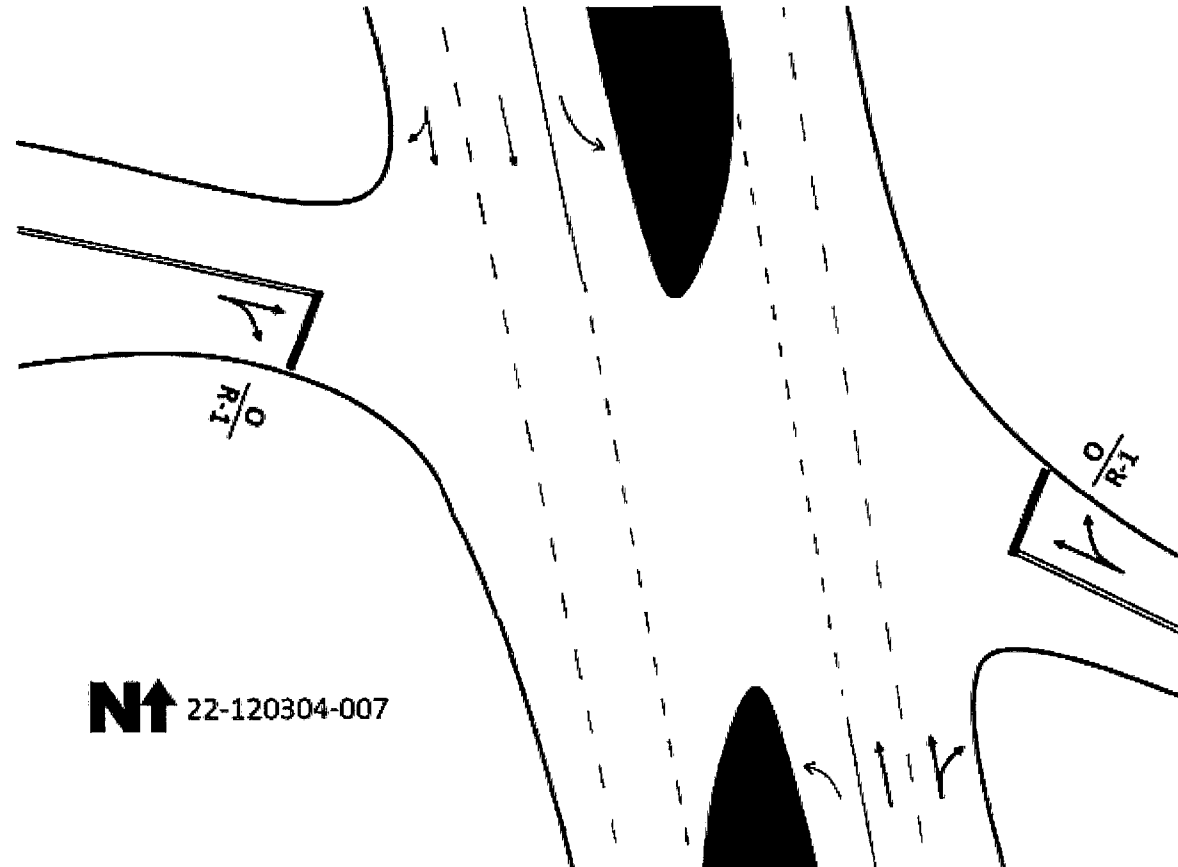
Count Times: 16:00 – 18:00

Control: 2-Way Stop(EB/WB)



N/S Street: US 98/5R 50/Cortez Blvd

Speed: 50 MPH



N↑ 22-120304-007

E/W Street: Ridge Manor Blvd

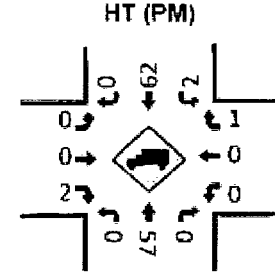
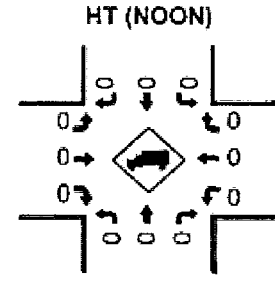
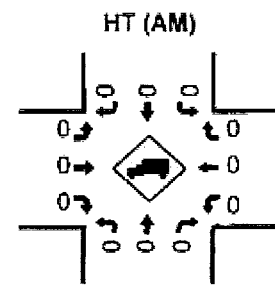
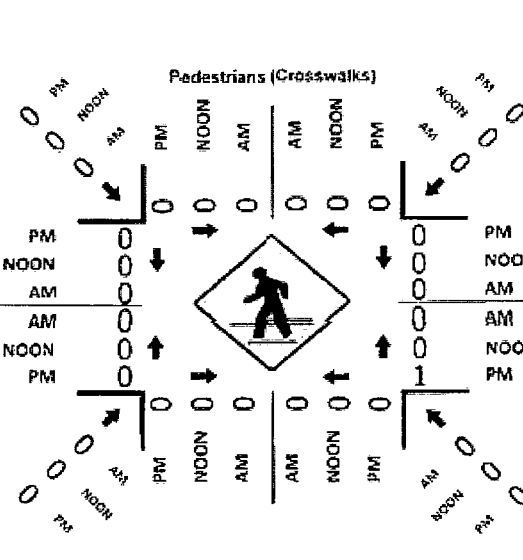
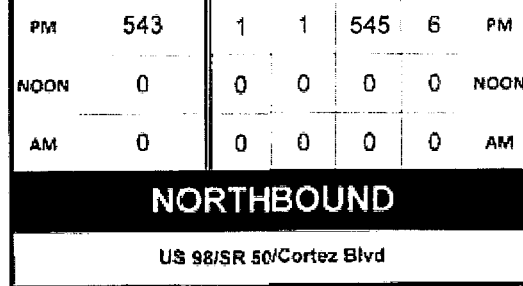
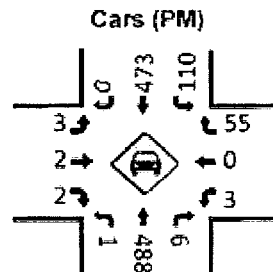
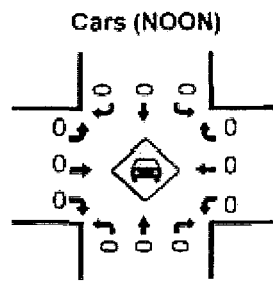
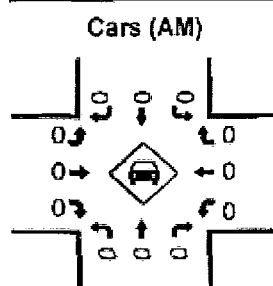
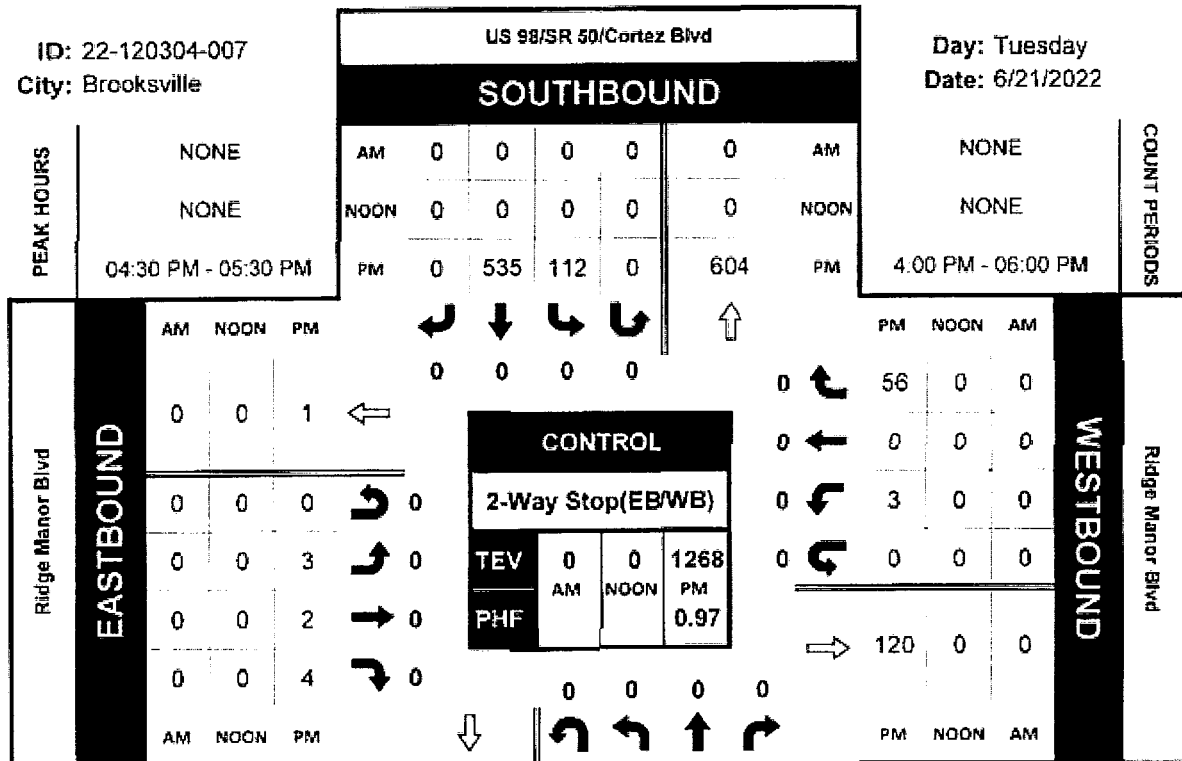
Speed: 45 MPH

US 98/SR 50/Cortez Blvd & Ridge Manor Blvd

Peak Hour Turning Movement Count

ID: 22-120304-007
City: Brooksville

Day: Tuesday
Date: 6/21/2022

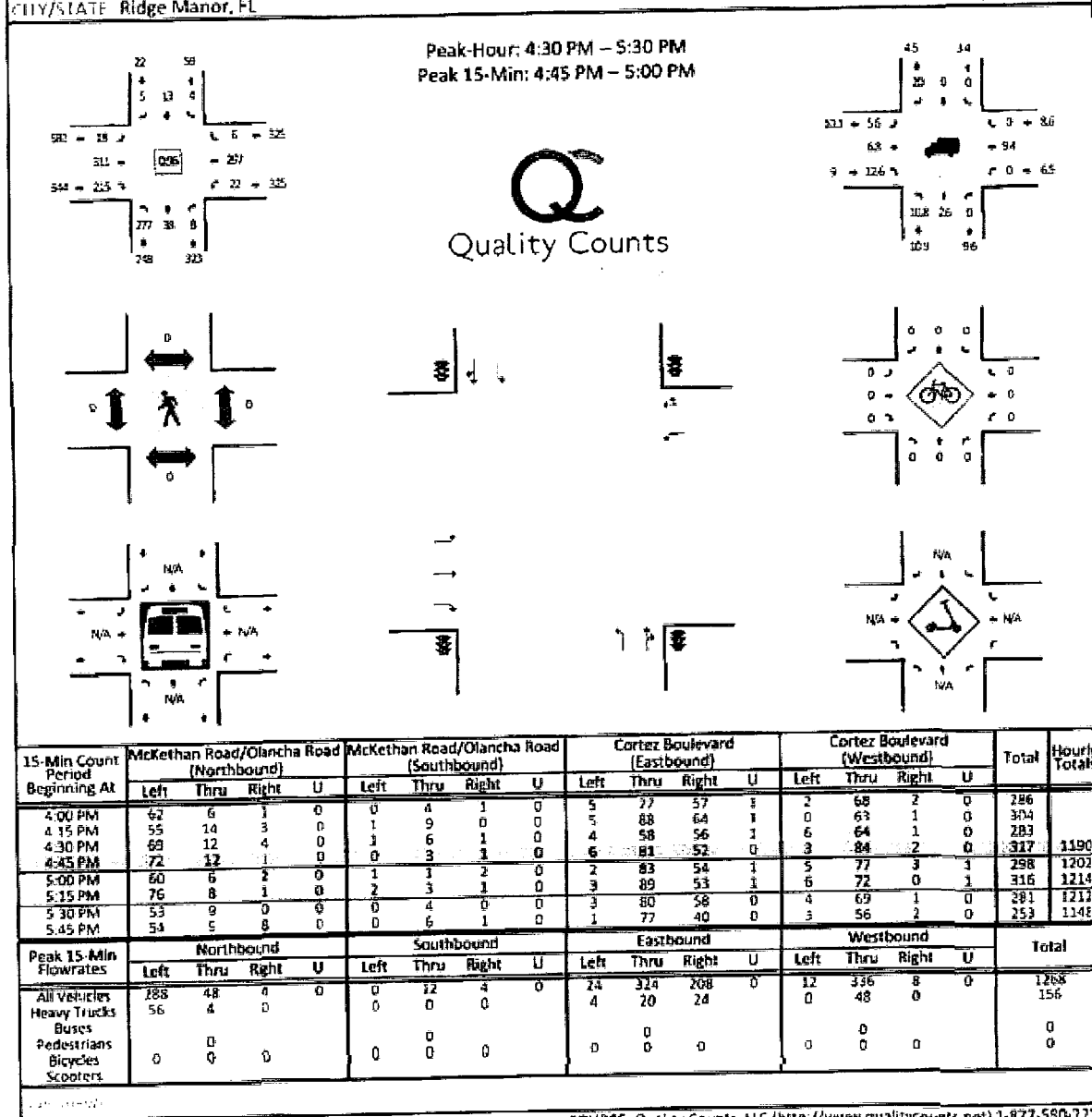


Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: McKethan Road/Olancha Road -- Cortez Boulevard
CITY/STATE: Ridge Manor, FL

QC JOB #: 15729306
DATE: Tue, Mar 8 2022



Report generated on 3/14/2022 1:51 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212



National Data & Surveying Services

Site Code: 22-120304-009

Date: 6/21/2022

Weather: Sunny

City: Brooksville

County: Hernando

Count Times: 16:00 – 18:00

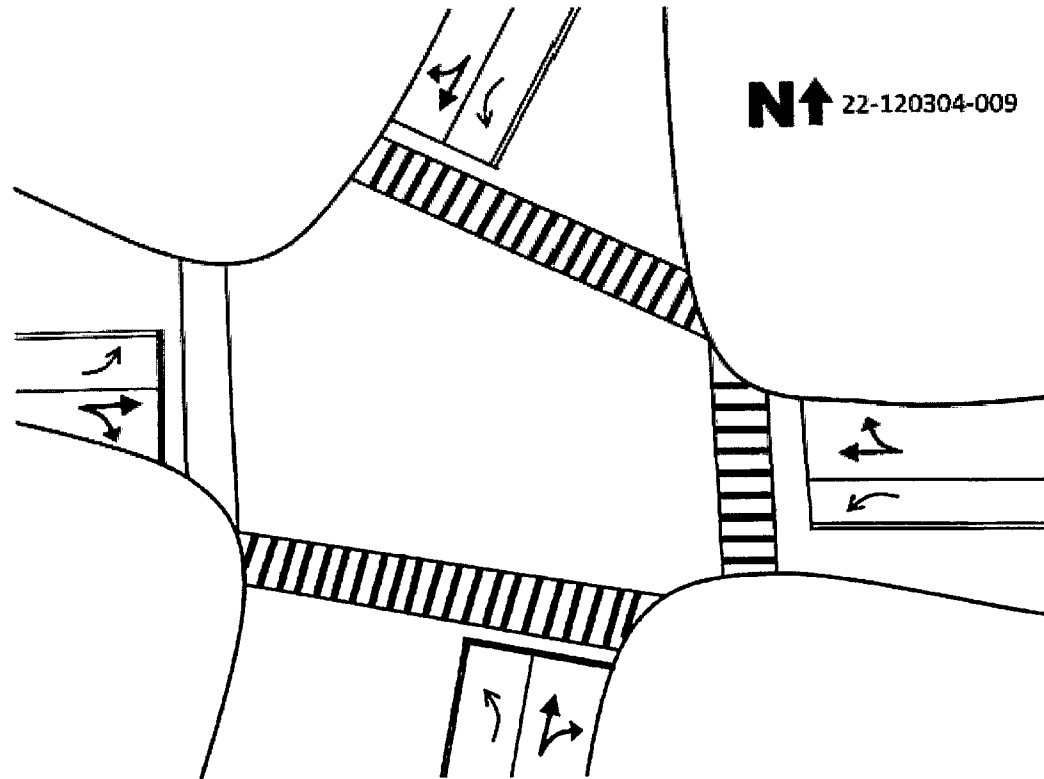
Control: Signalized

Phase	1	2	3
ST/NT	00:34	01:03	00:41
NT/NL	00:16	-	00:23
ET/WT	01:03	00:28	00:33
ET/EL	-	00:13	00:27
WL/WT	-	00:40	00:18



N/S Street: US 301/SR 35/Treiman Blvd

Speed: N/A



E/W Street: SR 50/Cortez Blvd

Speed: 60 MPH



National Data & Surveying Services

Site Code: 22-120304-010

Date: 6/21/2022

Weather: Sunny

City: Brooksville

County: Hernando

Count Times: 16:00 – 18:00

Control: Signalized

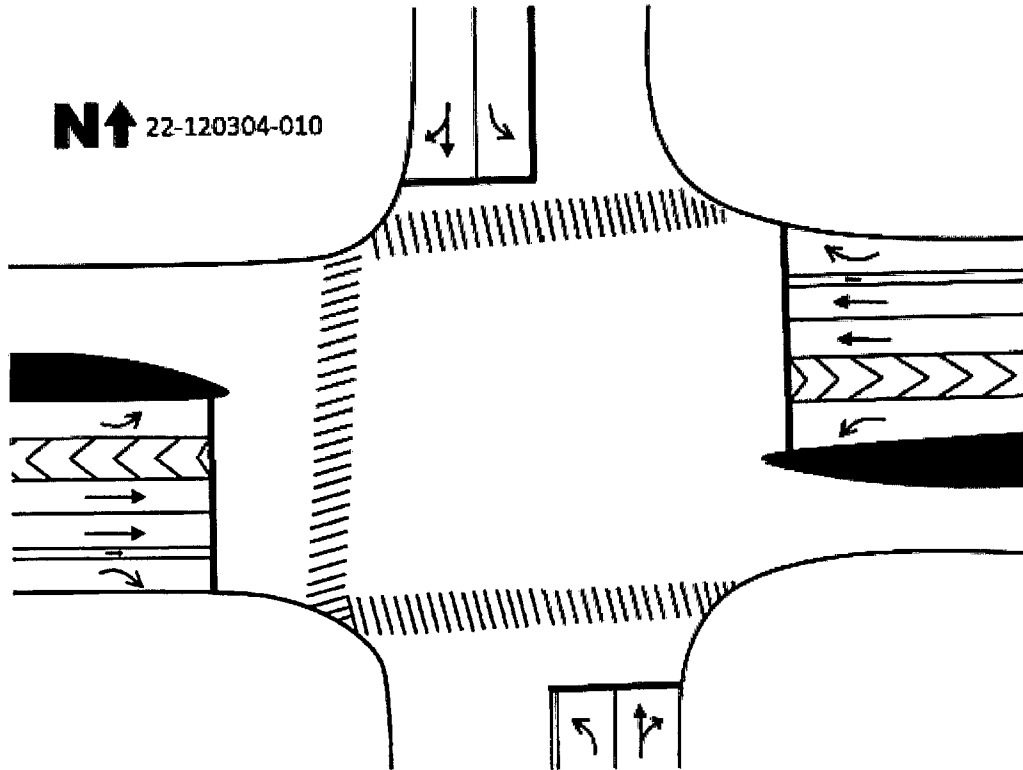
Phase	1	2	3
ST	00:15	-	-
ET/WT	02:47	01:46	00:47
NL	-	00:11	00:14



N/S Street: SR 581/S Main St/Mitchell Rd

Speed: 35 MPH

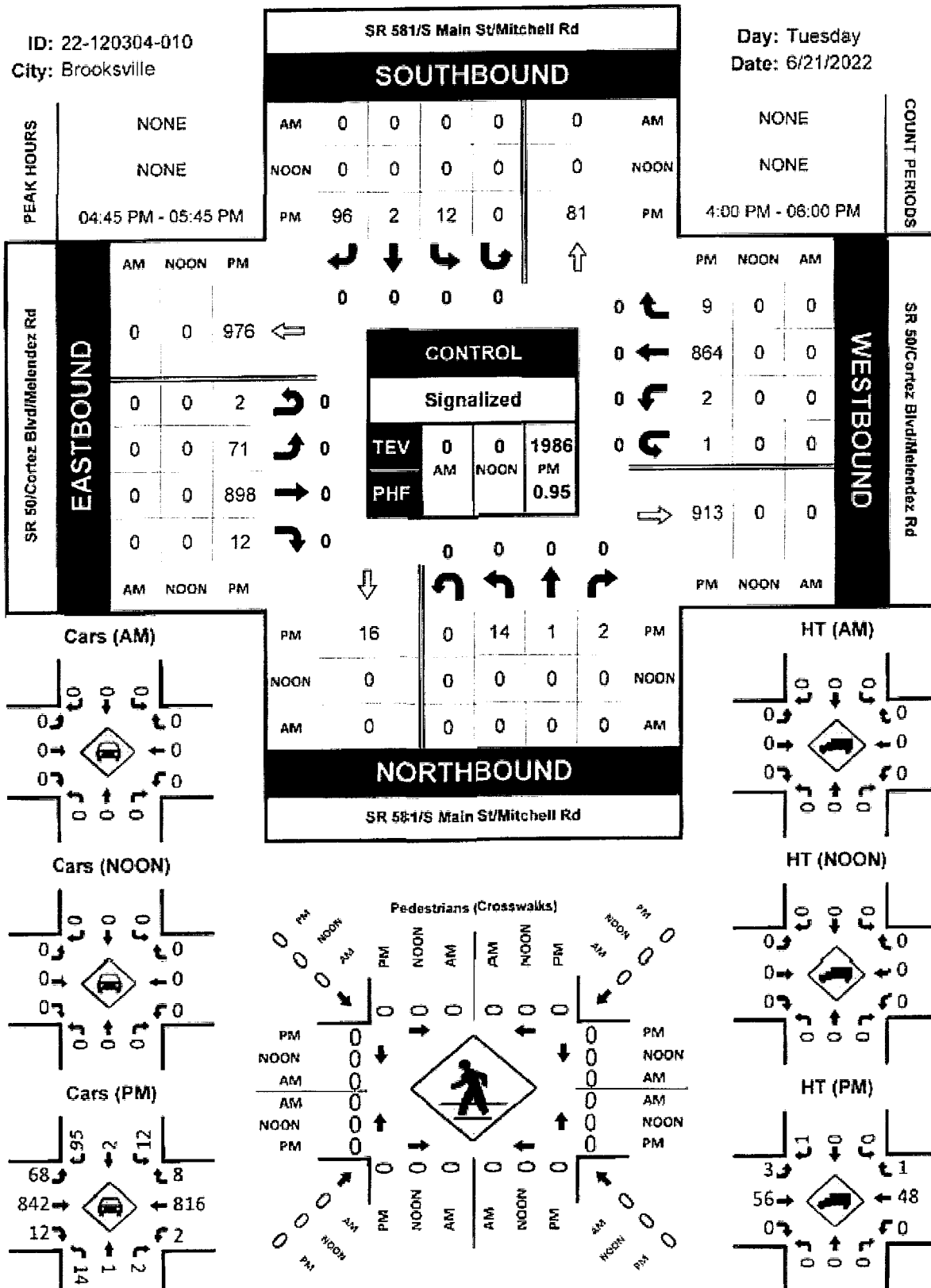
N↑ 22-120304-010



E/W Street: SR 50/Cortez Blvd/Melendez Rd

Speed: 50 MPH

Day: Tuesday
Date: 6/21/2022





National Data & Surveying Services

Site Code: 22-120304-012

Date: 6/21/2022

Weather: Sunny

City: Brooksville

County: Hernando

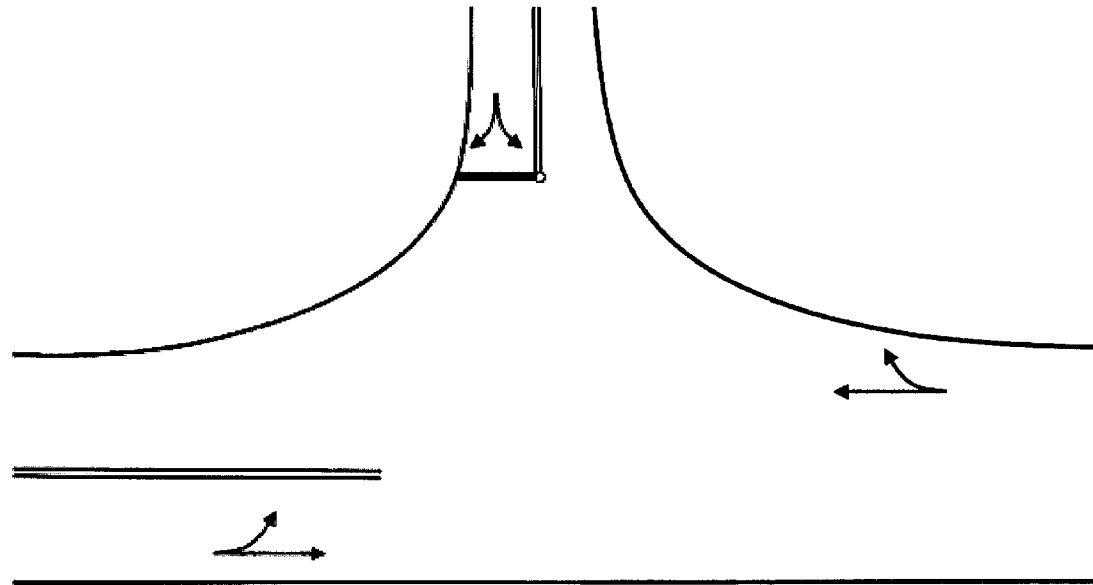
Count Times: 16:00 – 18:00

Control: No Control



N/S Street: Kettering Rd

Speed: 30 MPH



N↑ 22-120304-012

E/W Street: Power Line Rd

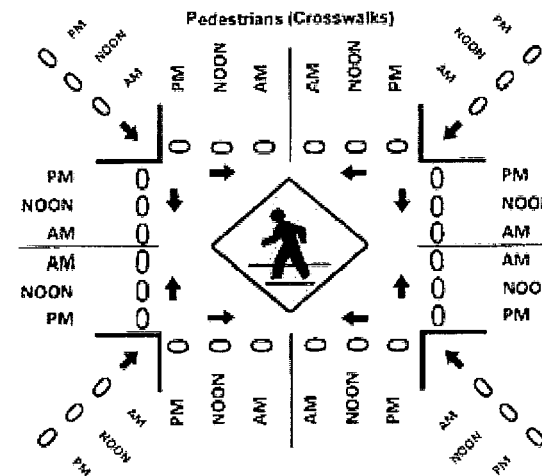
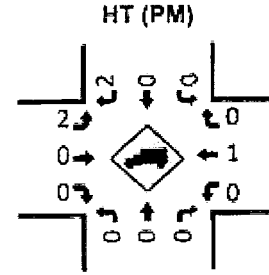
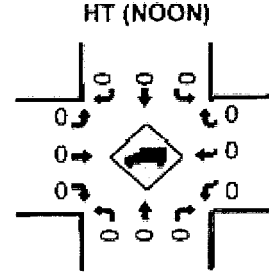
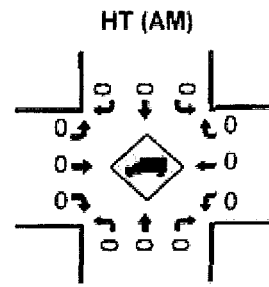
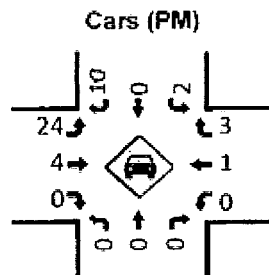
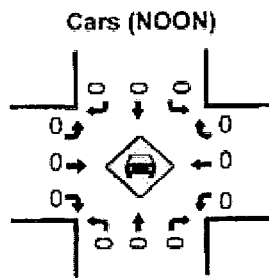
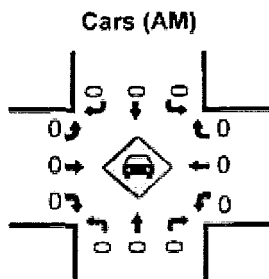
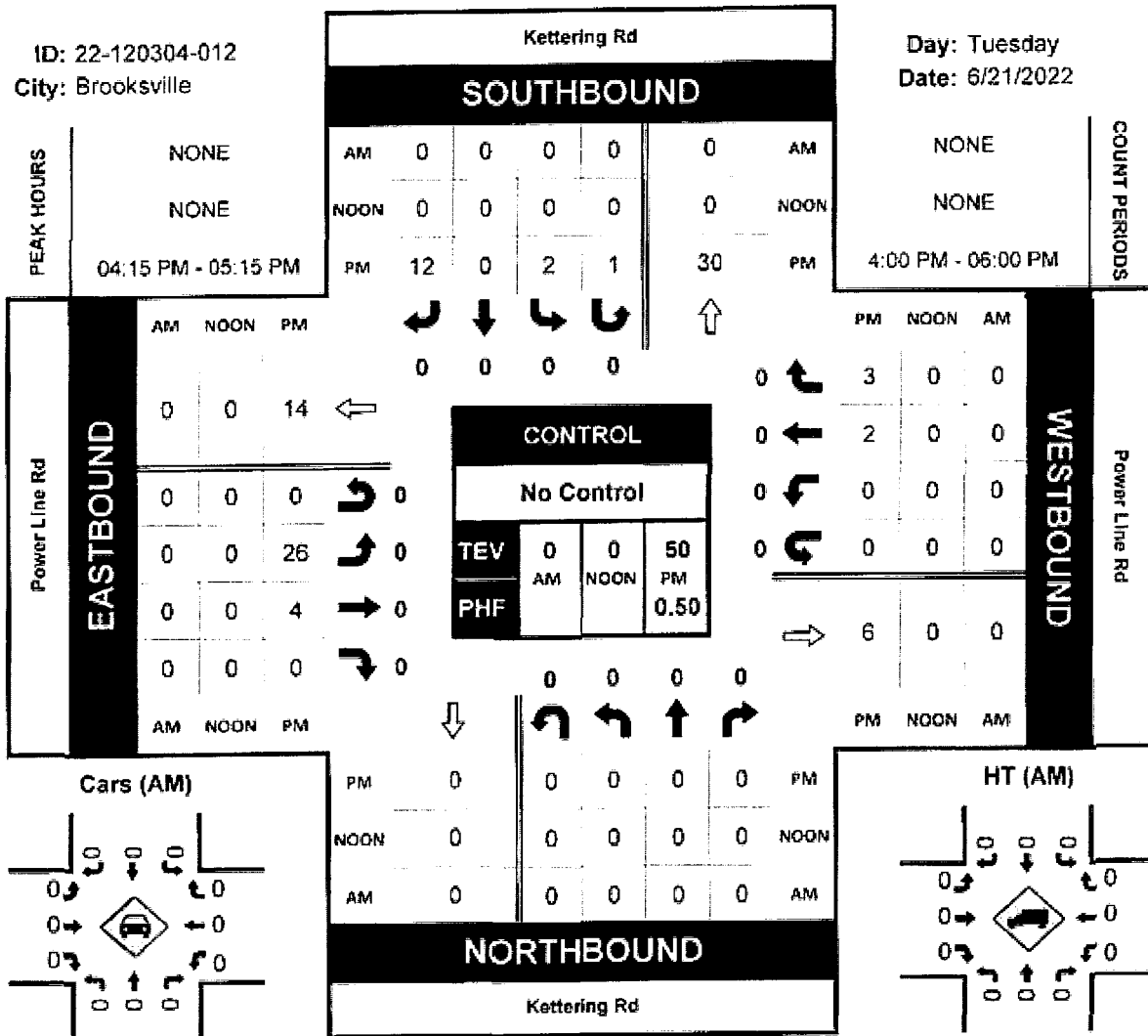
Speed: N/A

Kettering Rd & Power Line Rd

Peak Hour Turning Movement Count

ID: 22-120304-012
City: Brooksville

Day: Tuesday
Date: 6/21/2022





National Data & Surveying Services

Site Code: 22-120304-013

Date: 6/21/2022

Weather: Sunny

City: Brooksville

County: Hernando

Count Times: 16:00 – 18:00

Control: 1-Way Stop{WB}

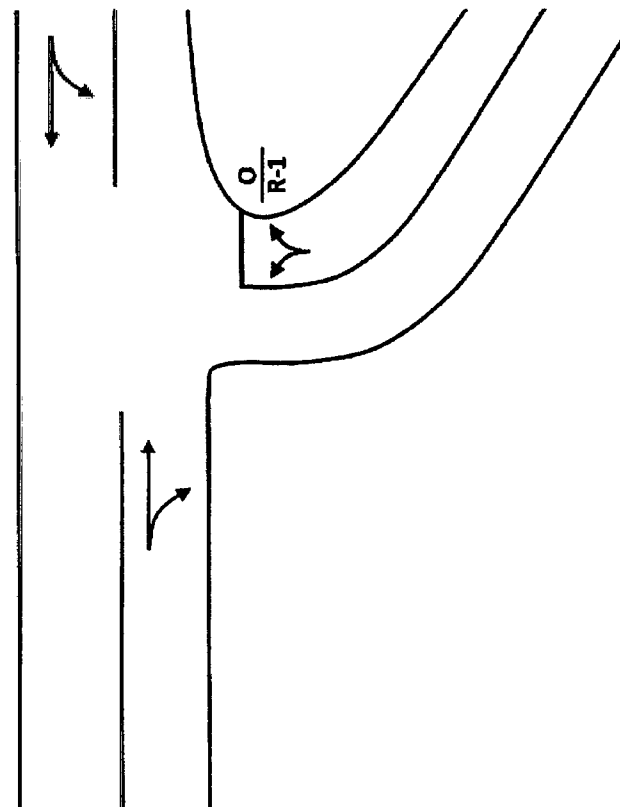


N/S Street: Lockhart Rd

Speed: 30 MPH



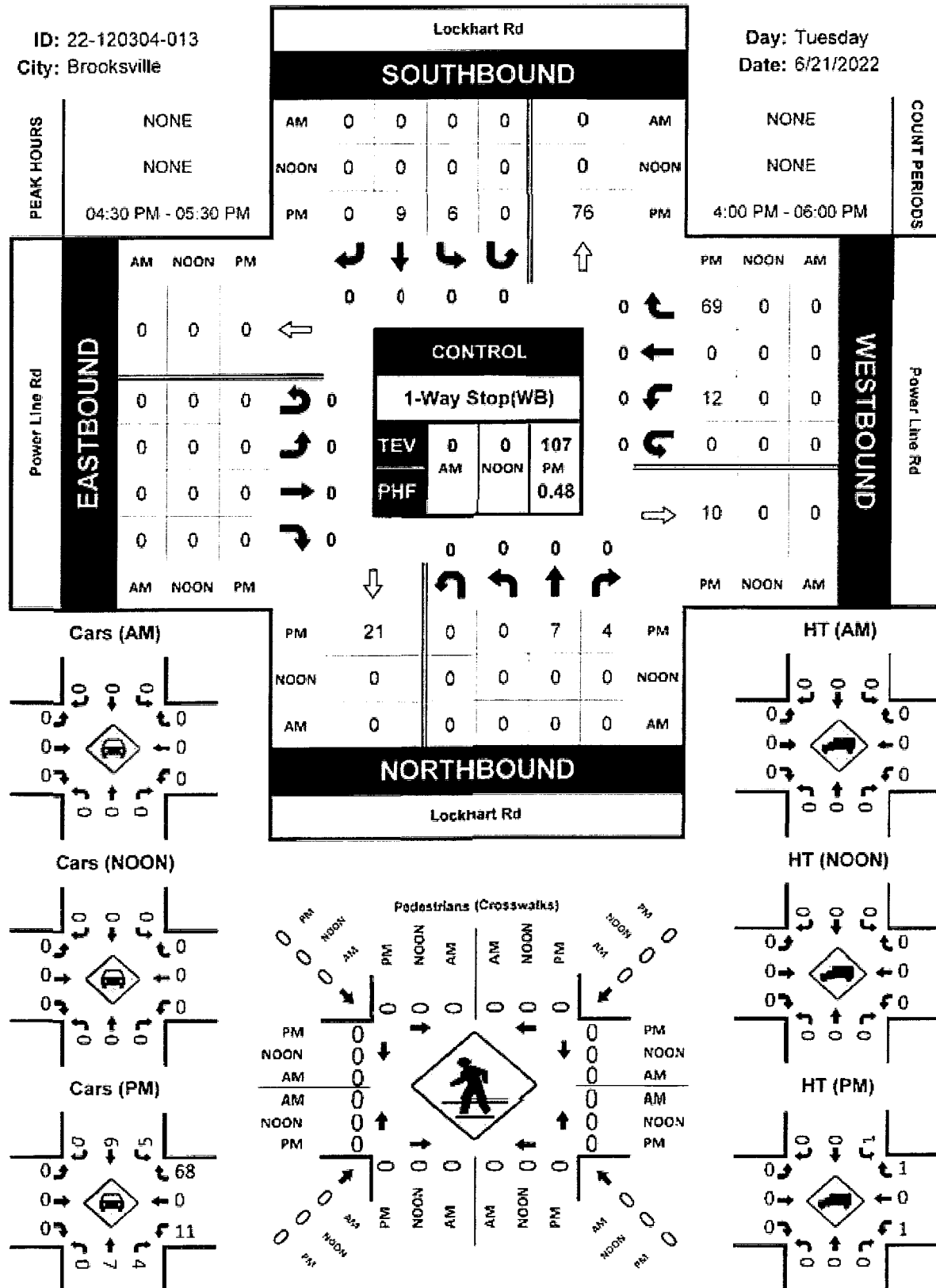
22-120304-013



E/W Street: Power Line Rd

Speed: N/A

Day: Tuesday
Date: 6/21/2022



FDOT PEAK SEASON ADJUSTMENT FACTORS



LINCKS & ASSOCIATES, INC.

2021 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 0800 HERNANDO COUNTYWIDE

MOCF: 0.97

WEEK	DATES	SF	PSCF
1	01/01/2021 - 01/02/2021	0.95	0.98
2	01/03/2021 - 01/09/2021	1.02	1.05
3	01/10/2021 - 01/16/2021	1.08	1.11
4	01/17/2021 - 01/23/2021	1.07	1.10
5	01/24/2021 - 01/30/2021	1.06	1.09
6	01/31/2021 - 02/06/2021	1.06	1.09
7	02/07/2021 - 02/13/2021	1.05	1.08
8	02/14/2021 - 02/20/2021	1.04	1.07
9	02/21/2021 - 02/27/2021	1.02	1.05
10	02/28/2021 - 03/06/2021	1.01	1.04
11	03/07/2021 - 03/13/2021	0.99	1.02
12	03/14/2021 - 03/20/2021	0.98	1.01
13	03/21/2021 - 03/27/2021	0.98	1.01
14	03/28/2021 - 04/03/2021	0.98	1.01
15	04/04/2021 - 04/10/2021	0.98	1.01
16	04/11/2021 - 04/17/2021	0.98	1.01
17	04/18/2021 - 04/24/2021	0.98	1.01
18	04/25/2021 - 05/01/2021	0.98	1.01
19	05/02/2021 - 05/08/2021	0.98	1.01
20	05/09/2021 - 05/15/2021	0.98	1.01
21	05/16/2021 - 05/22/2021	0.98	1.01
22	05/23/2021 - 05/29/2021	0.99	1.02
23	05/30/2021 - 06/05/2021	0.99	1.02
24	06/06/2021 - 06/12/2021	0.99	1.02
25	06/13/2021 - 06/19/2021	1.00	1.03
26	06/20/2021 - 06/26/2021	1.01	1.04
27	06/27/2021 - 07/03/2021	1.02	1.05
28	07/04/2021 - 07/10/2021	1.04	1.07
29	07/11/2021 - 07/17/2021	1.05	1.08
30	07/18/2021 - 07/24/2021	1.05	1.08
31	07/25/2021 - 07/31/2021	1.05	1.08
32	08/01/2021 - 08/07/2021	1.05	1.08
33	08/08/2021 - 08/14/2021	1.05	1.08
34	08/15/2021 - 08/21/2021	1.05	1.08
35	08/22/2021 - 08/28/2021	1.05	1.08
36	08/29/2021 - 09/04/2021	1.04	1.07
37	09/05/2021 - 09/11/2021	1.04	1.07
38	09/12/2021 - 09/18/2021	1.03	1.06
39	09/19/2021 - 09/25/2021	1.02	1.05
*40	09/26/2021 - 10/02/2021	1.00	1.03
*41	10/03/2021 - 10/09/2021	0.99	1.02
*42	10/10/2021 - 10/16/2021	0.97	1.00
*43	10/17/2021 - 10/23/2021	0.97	1.00
*44	10/24/2021 - 10/30/2021	0.97	1.00
*45	10/31/2021 - 11/06/2021	0.96	0.99
*46	11/07/2021 - 11/13/2021	0.96	0.99
*47	11/14/2021 - 11/20/2021	0.96	0.99
*48	11/21/2021 - 11/27/2021	0.95	0.98
*49	11/28/2021 - 12/04/2021	0.95	0.98
*50	12/05/2021 - 12/11/2021	0.95	0.98
*51	12/12/2021 - 12/18/2021	0.95	0.98
*52	12/19/2021 - 12/25/2021	1.02	1.05
53	12/26/2021 - 12/31/2021	1.08	1.11

* PEAK SEASON

08-MAR-2022 12:36:28

830UPD

7_0800_PKSEASON.TXT

CORTEZ BOULEVARD PAVEMENT MAKING PLANS



**STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION**

CONTRACT PLANS

FINANCIAL PROJECT ID 416732-4-52-01
(FEDERAL FUNDS)

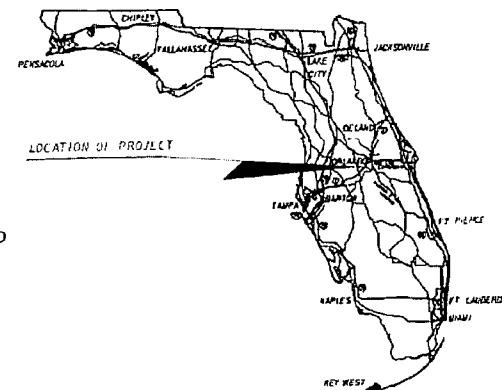
HERNANDO COUNTY (08070 & 08120)

STATE ROAD NO. 50
FROM WINDMERE ROAD/BRONSON BOULEVARD TO EAST OF US 98/MCKETHAN RD

SIGNING AND PAVEMENT MARKING PLANS

INDEX OF SIGNING AND PAVEMENT MARKING PLANS

SHEET NO	SHEET DESCRIPTION
S-1	KEY SHEET
S-2	SIGNATURE SHEET
S-3	SIGNATURE SHEET
S-4	TABULATION OF QUANTITIES
S-5	GENERAL NOTES
S-6	PAVEMENT MARKING PLAN
S-7	SIGNING PLAN
S-8	GUIDE SIGN WORKSHEET
S-9	SIGN CROSS SECTION
S-10	CANTILEVER SIGN DETAIL
S-11	REPORT OF CONE BORINGS



**SIGNING AND PAVEMENT
MARKING PLANS**

MICHAEL J. OATES, P.E.
P.E. NO. 49982
HDR ENGINEERING, INC.
4830 W KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609-7548
(813) 282-2360
CONTRACT NO. C-9FS1
VENDOR NO. VE-470680589
CERTIFICATE OF AUTHORIZATION 4213

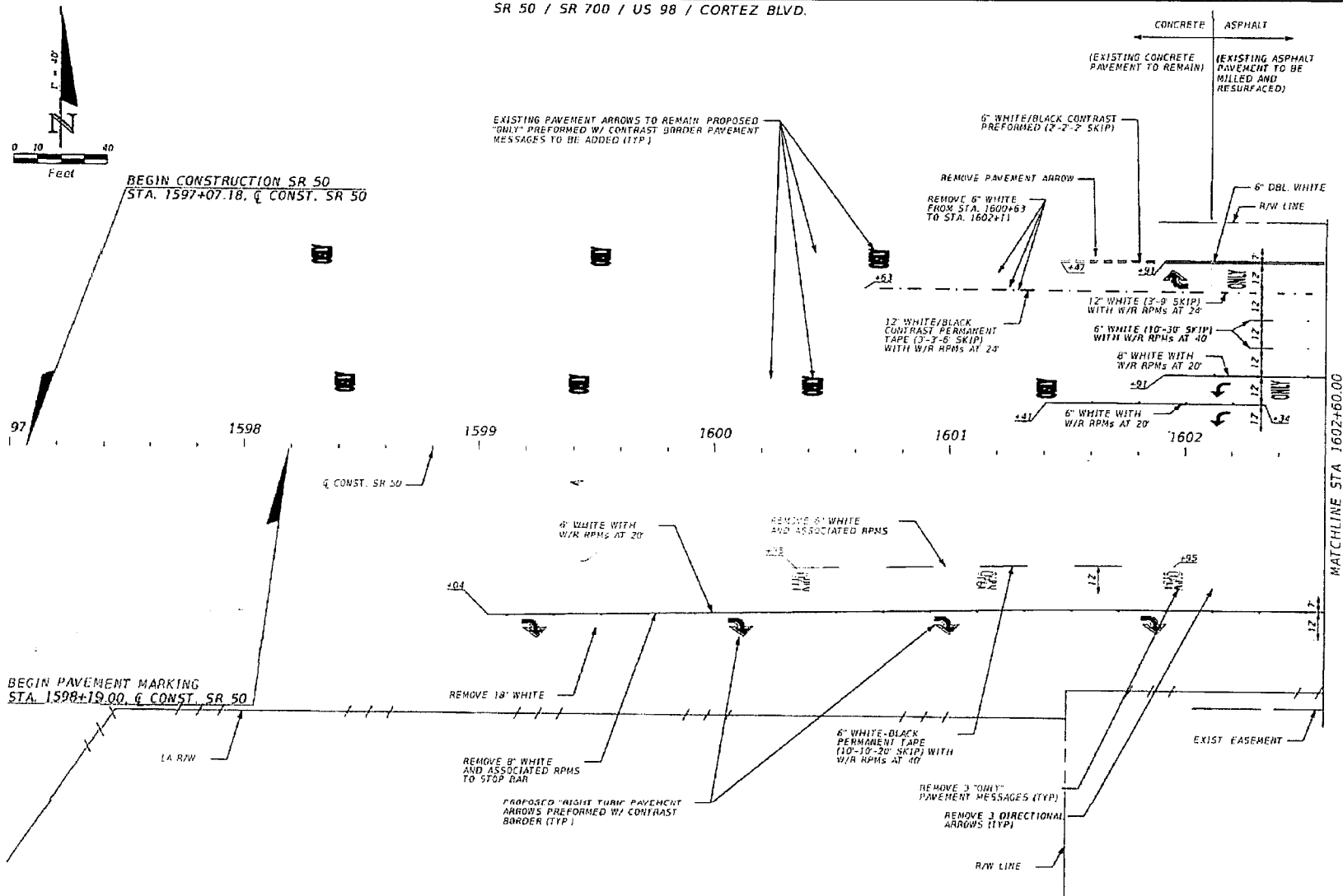
FDOT PROJECT MANAGER:
KEVIN LEE

KEY SHEET REVISIONS	
DATE	DESCRIPTION
5/16/21	 ADDED SHEET NUMBER S-2A TO INDEX

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
77396	20	S-1

THE PRINTED RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

SR 50 / SR 700 / US 98 / CORTEZ BLVD.



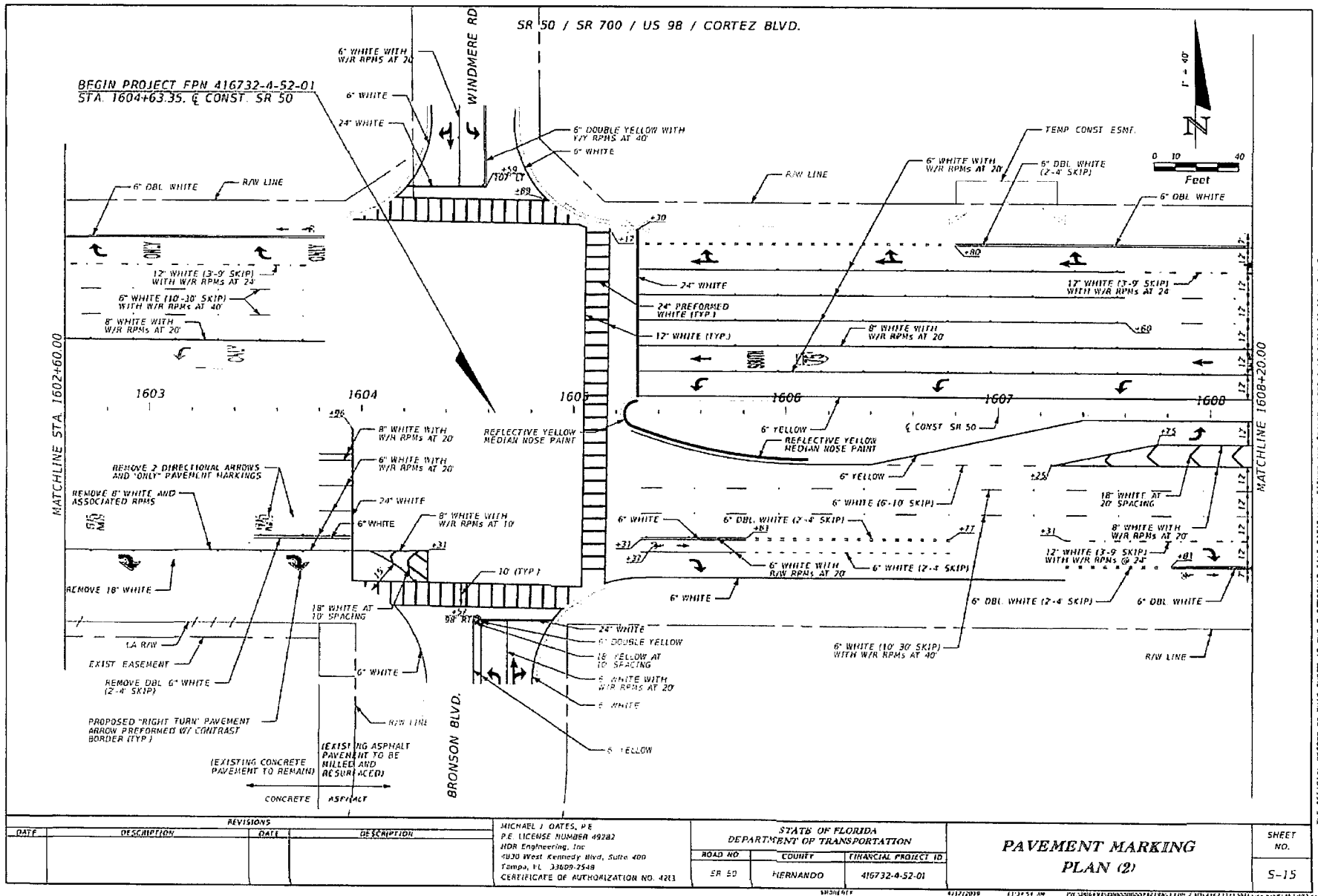
MATCHLINE STA 1602+60.00

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	PAVEMENT MARKING PLAN (1)	SHEET NO. S-14
DATE	DESCRIPTION	DATE	DESCRIPTION			
				ROAD NO.	COUNTY	FINANCIAL PROJECT ID
				SR 50	HERNANDO	416732-4-52-01

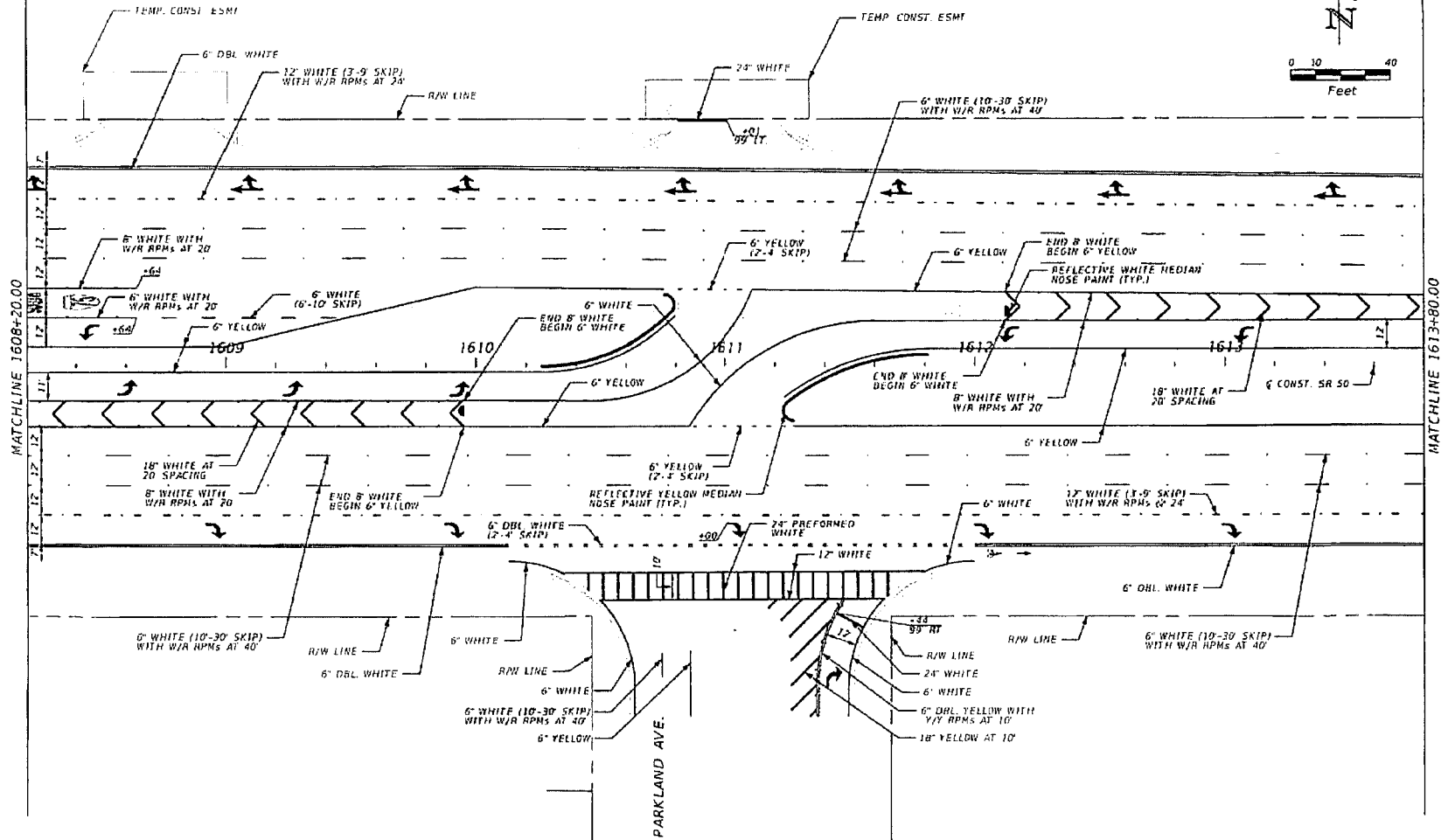
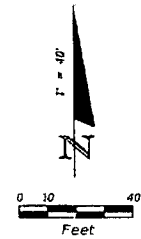
MICHAEL J. DATES, P.E.
P.E. LICENSE NUMBER 49782
HDR Engineering, Inc.
4030 West Kennedy Blvd. Suite 400
Tampa, FL 33609-1548
CERTIFICATE OF AUTHORIZATION NO. 4313

5/10/2011 11:44:22 AM P:\PROJECTS\416732-4-52-01\110513.DWG (A16732-4-52-01) User: mjd/416732-4-52-01



THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

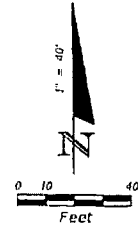
SR 50 / SR 700 / US 98 / CORTEZ BLVD.



REVISIONS				MICHAEL J. DATES, P.E. P.E. LICENSE NUMBER 49292 MOR Engineering, Inc. 4830 West Kennedy Blvd. Suite 400 Tampa, FL 33609-2548 CERTIFICATE OF AUTHORIZATION NO. 4212	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN (3)	SHEET NO. S-16
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 50	HERNANDO	415732-4-52-01		

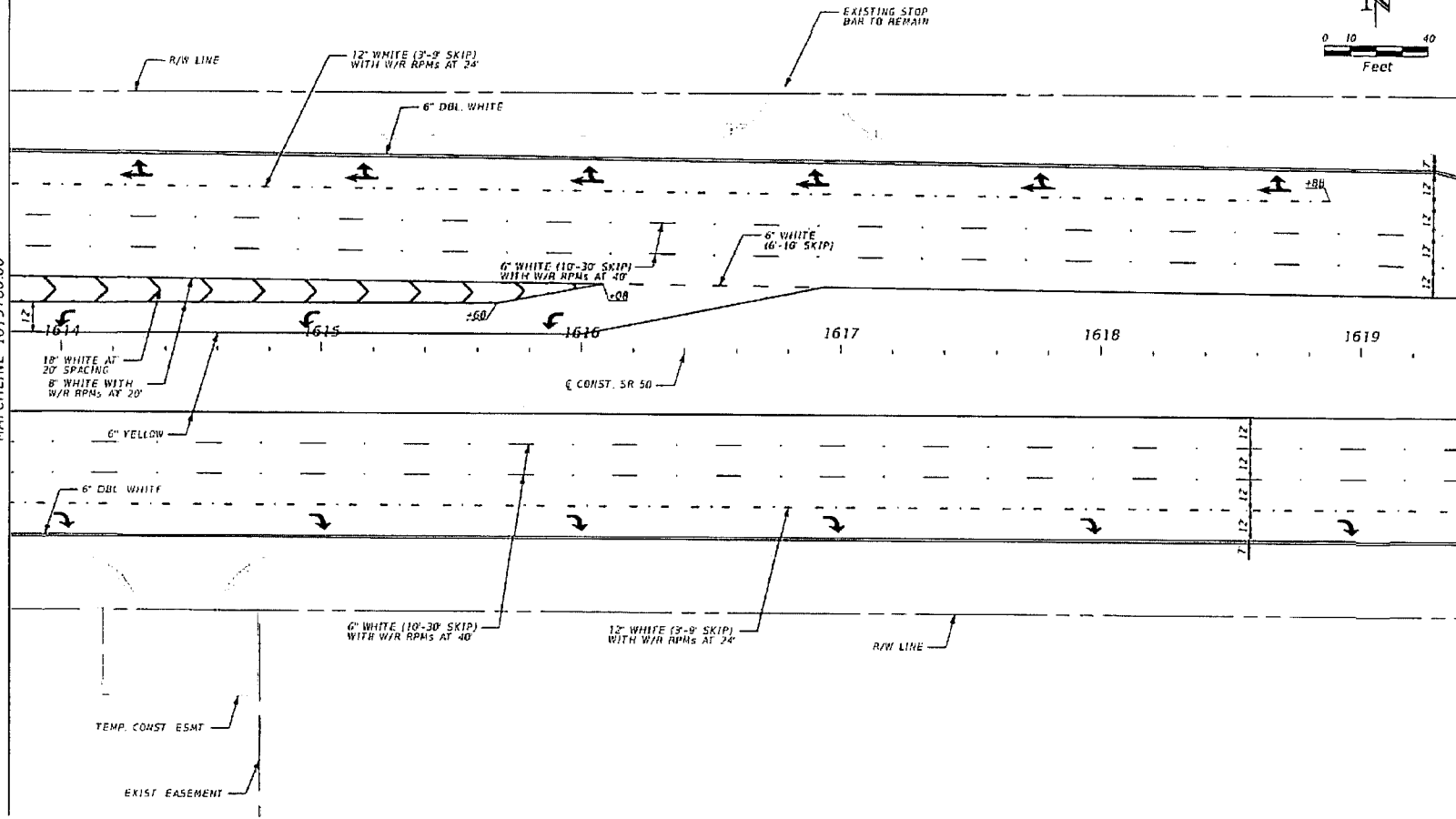
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.001, F.A.C.

SR 50 / SR 700 / US 98 / CORTEZ BLVD.



MATCHLINE 1613+80.00

MATCHLINE 1619+40.00



REVISIONS		DESCRIPTION		MICHAEL J. OATES, P.E. P.E. LICENSE NUMBER 49282 JDR Engineering, Inc. 4830 West Kennedy Blvd., Suite 400 Tampa, FL 33609-2548 CERTIFICATE OF AUTHORIZATION NO. 4213	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN (4)	SHEET NO. S-17
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 50	HERNANDO	410732-4-52-01		

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61C13-23.004, F.A.C.

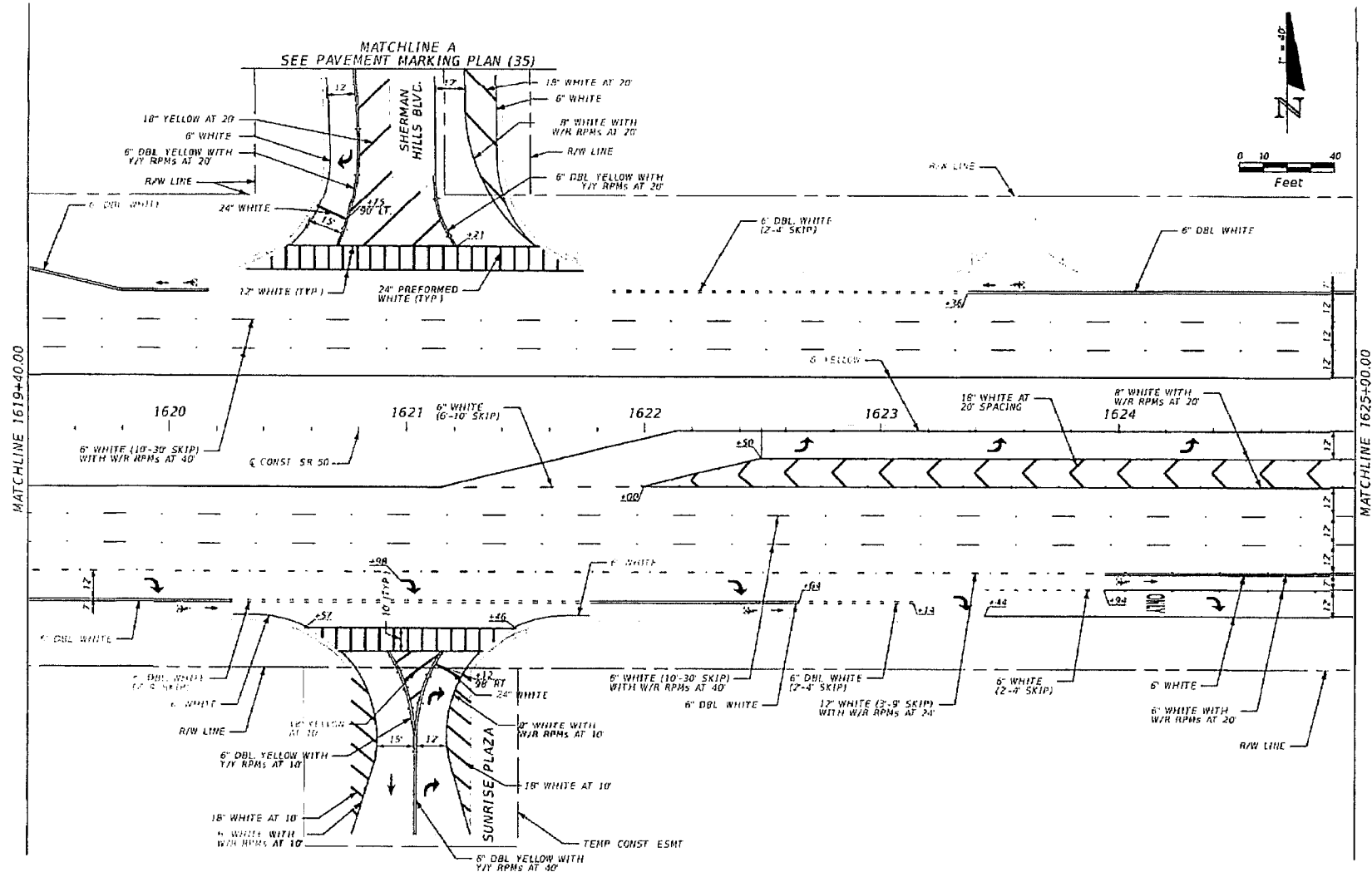
SHEET 17

11/17/2019

11:31:21 AM

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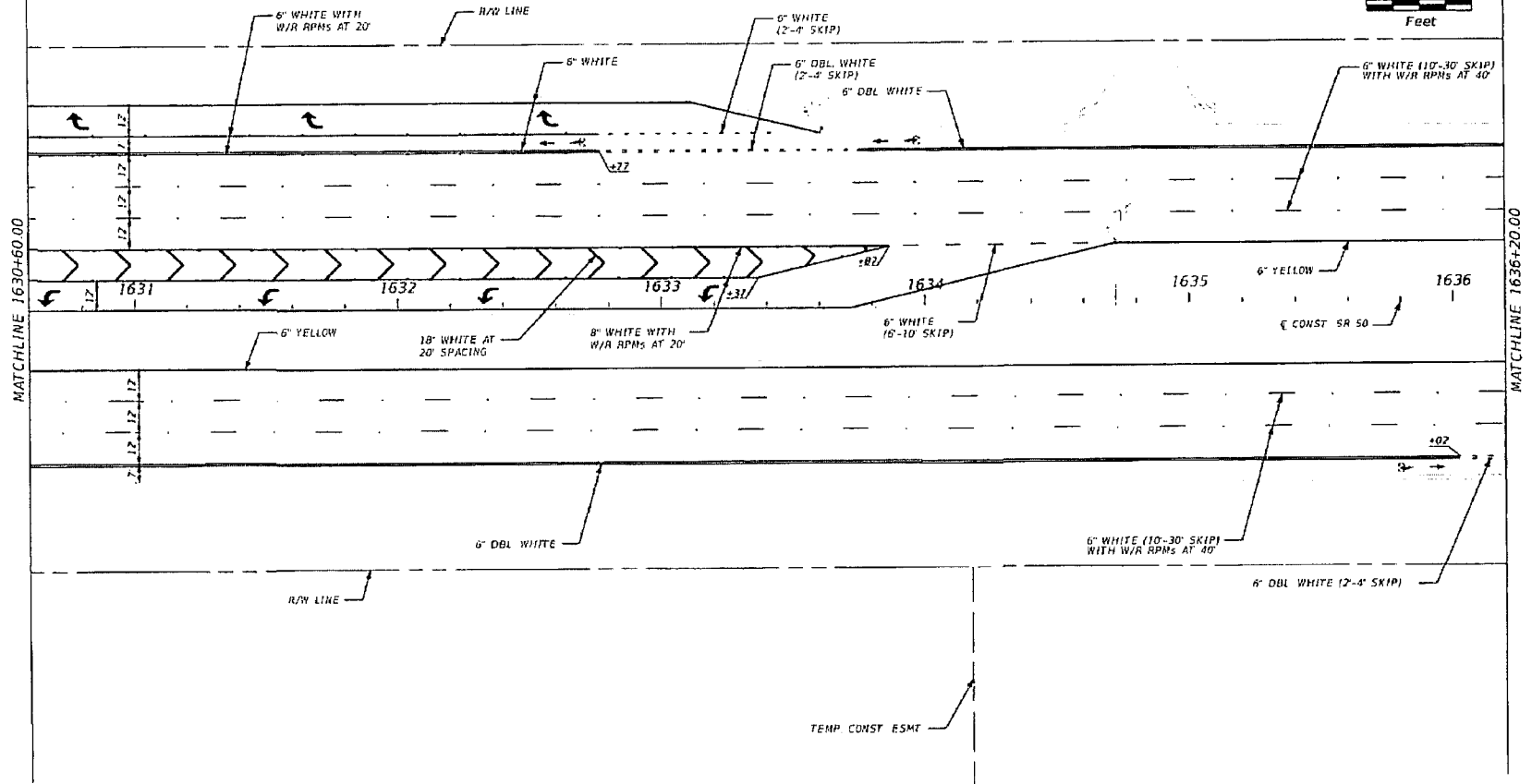
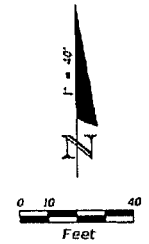
SR 50 / SR 700 / US 98 / CORTEZ BLVD.



REVISIONS				MICHAEL J. GATES, P.E. P.E. LICENSE NUMBER 49282 UDR Engineering, Inc. 4830 West Kennedy Blvd., Suite 400 Tampa, FL 33609-2578 CERTIFICATE OF AUTHORIZATION NO. 4213	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN (5)	SHEET NO. S-18
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 50	HERNANDO	316732-4-52-01		

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61515-17 D04, F A C

SR 50 / SR 700 / US 98 / CORTEZ BLVD.



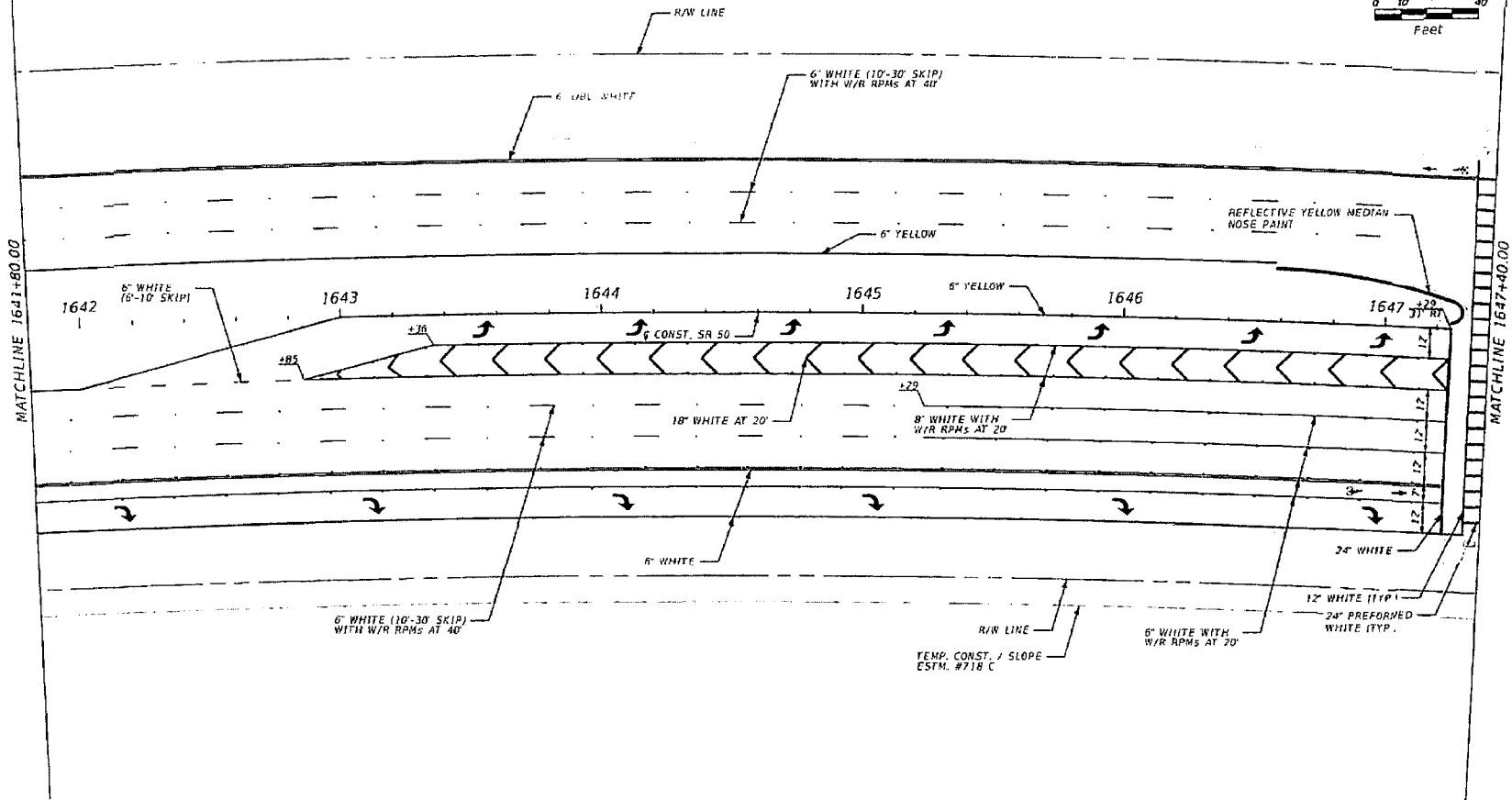
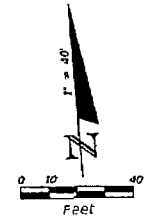
REVISIONS		DESCRIPTION	DATE	DESCRIPTION	DATE
DATE	DESCRIPTION				

MICHAEL J. GATES, P.E. P.E. LICENSE NUMBER 49282 HDR Engineering, Inc. 4830 West Kennedy Blvd., Suite 400 Tampa, FL 33609-2548 CERTIFICATE OF AUTHORIZATION NO. 4213		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	PAVEMENT MARKING PLAN (7)	SHEET NO. 5-20
ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
SR 50	HERNANDO	416732-4-52-01		

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

3/17/2019 11:10:08 AM PR:60269146000000337178611802 CAD:41673245201111 PLAN 5 PLOT 204

SR 50 / SR 700 / US 98 / CORTEZ BLVD.



REVISIONS				MICHAEL J. OATES, P.E. P.E. LICENSE NUMBER 49282 HDR Engineering, Inc. 4830 West Kennedy Blvd., Suite 400 Tampa, FL 33609-2548 CERTIFICATE OF AUTHORIZATION NO. 4212	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN (9)	SHEET NO 5-22
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO	COUNTY	FINANCIAL PROJECT ID		
					SR 50	HERNANDO	416732-4-52-01		

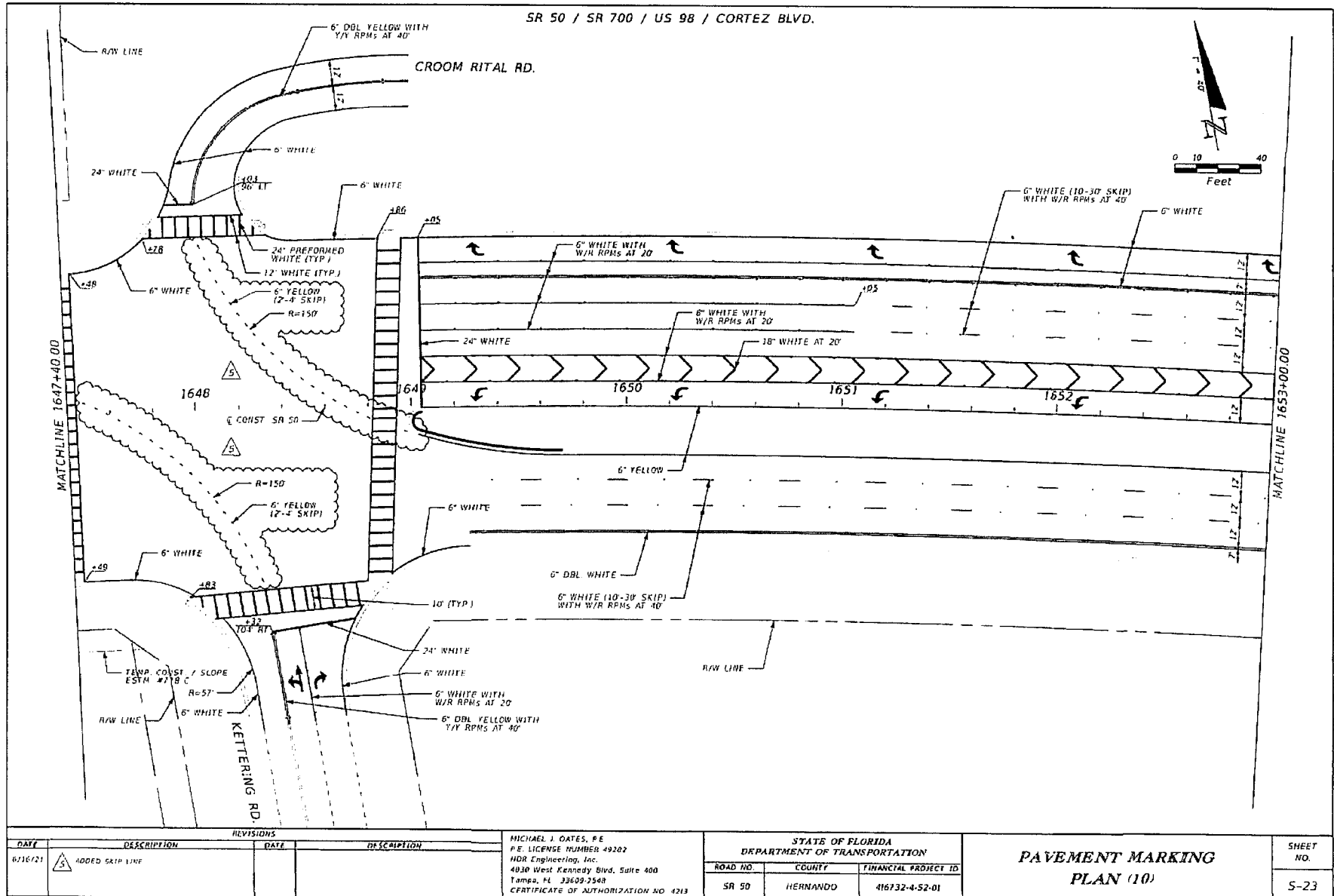
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61C15-33.004, F.A.C.

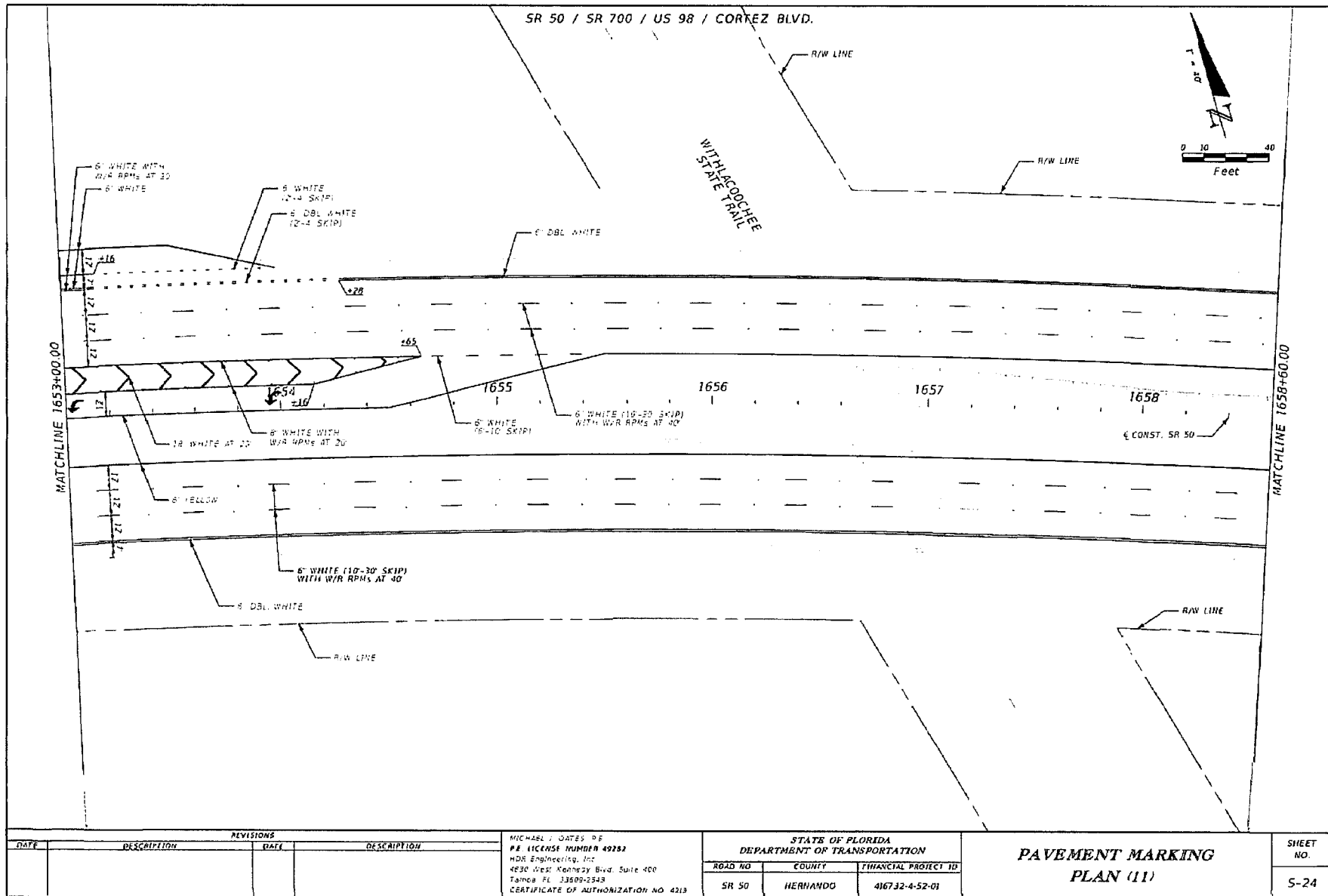
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8/17/2019

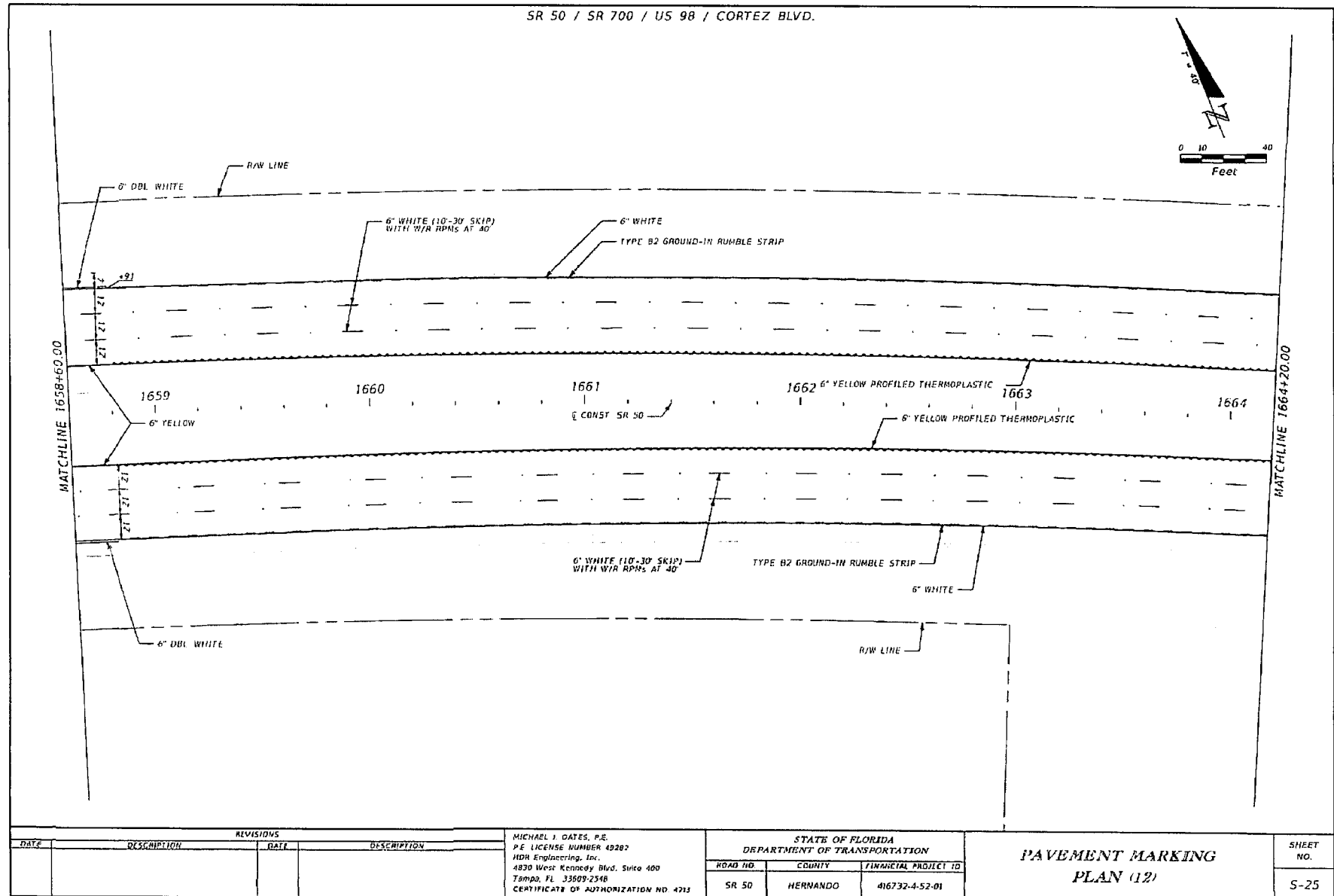
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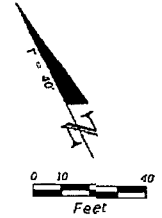


THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.001, F.A.C.



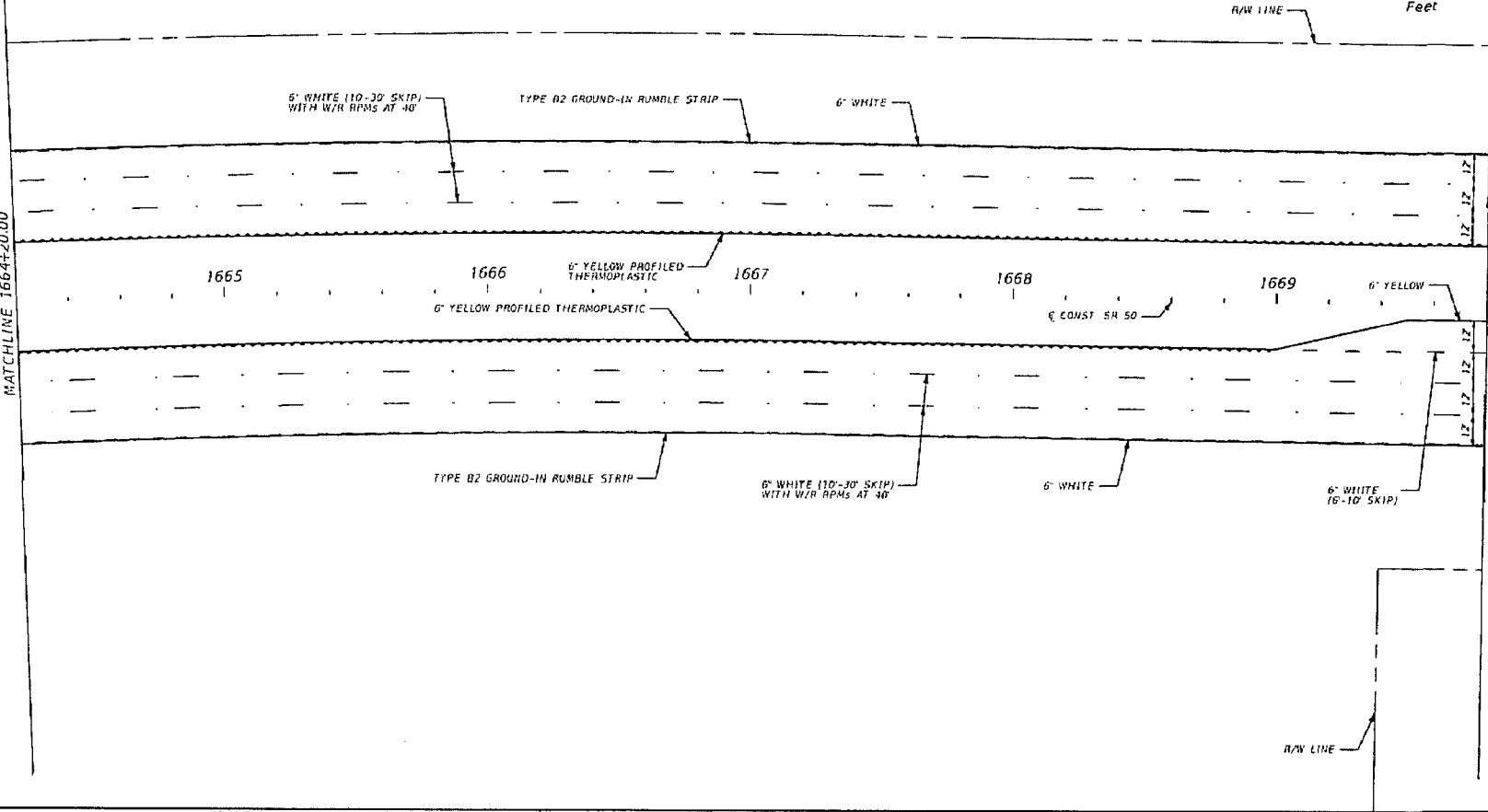
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G13-23.004, F.A.C.

SR 50 / SR 700 / US 98 / CORTEZ BLVD.



MATCHLINE 1664+20.00

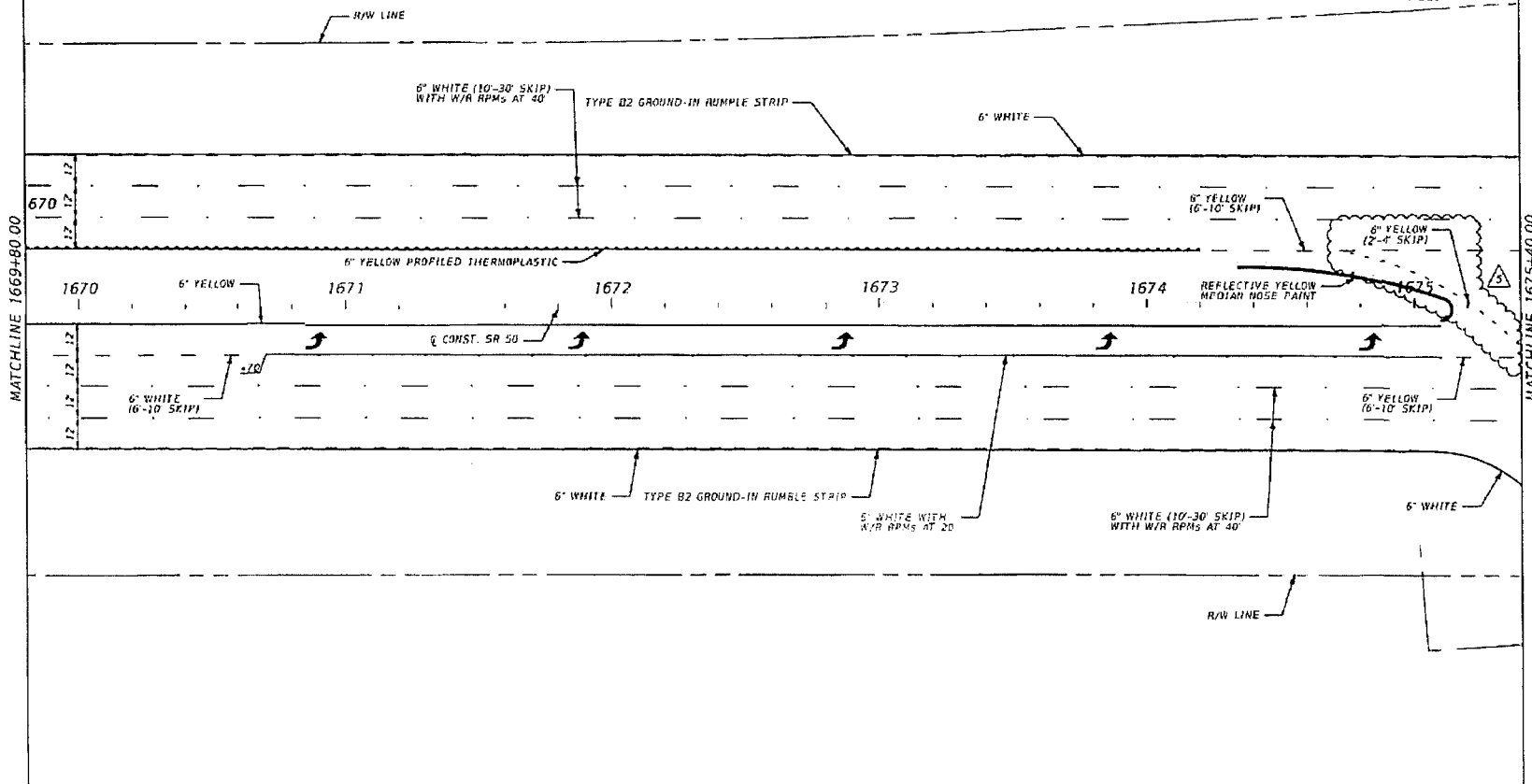
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REVISIONS				MICHAEL J. DATES, P.E. P.E. LICENSE NUMBER 49282 HDR Engineering, Inc. 4830 West Kennedy Blvd., Suite 400 Tampa, FL 33609-2548 CERTIFICATE OF AUTHORIZATION NO. 4213	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN (13)	SHEET NO. 5-26
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 50	HERNANDO	416732-4-52-01		

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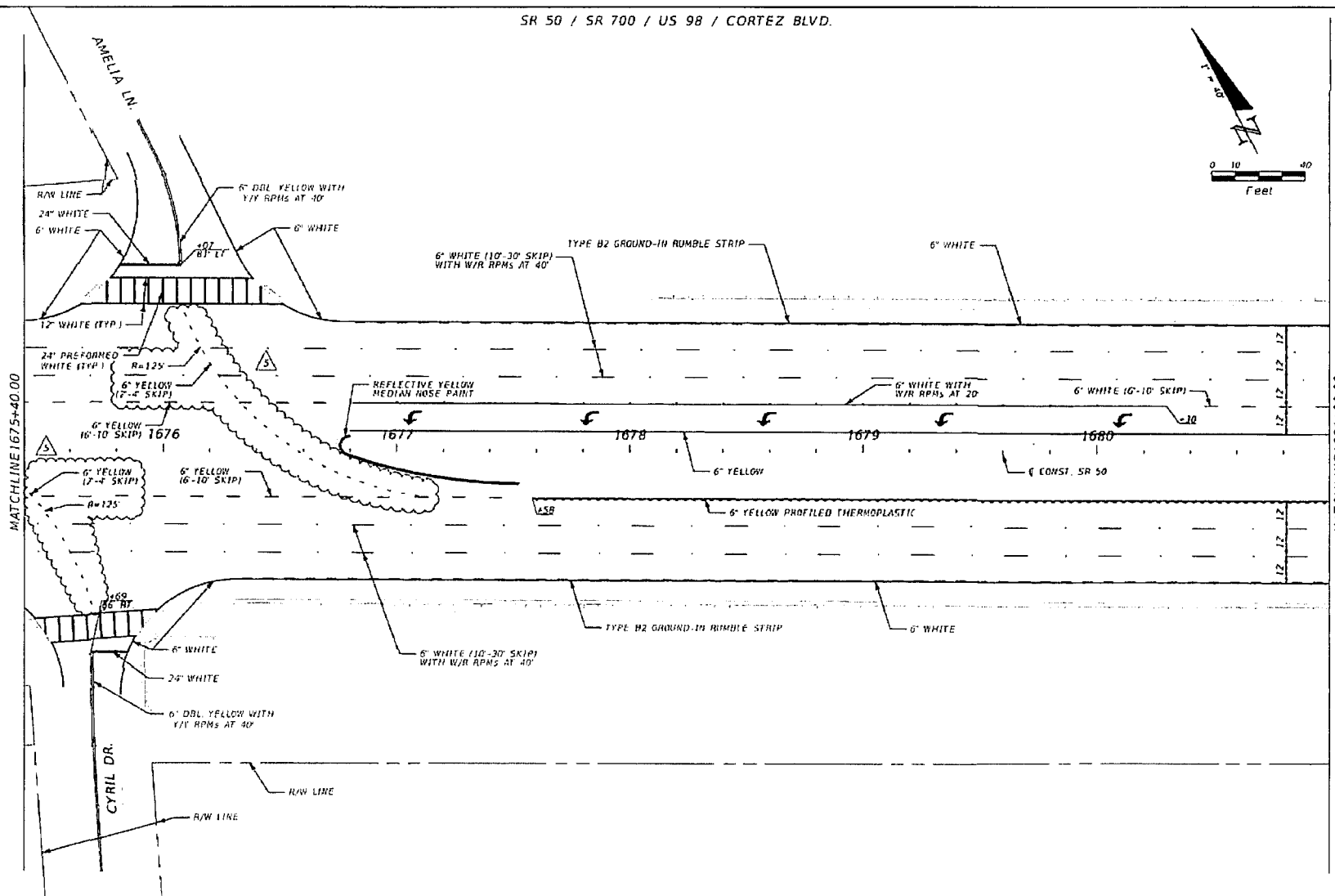
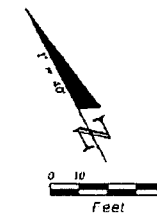
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REVISIONS			MICHAEL J. DATES, P.E. P.E. LICENSE NUMBER 00262 HDI Engineering, Inc. 4830 West Kennedy Blvd. Suite 400 Tampa, FL 33609-2548 CERTIFICATE OF AUTHORIZATION NO. 1213	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN 114	SHEET NO. S-27	
DATE	DESCRIPTION	DATE		DESCRIPTION	ROAD ID	COUNTY			FINANCIAL PROJECT ID
6/16/21	ADD SKIP LINE				SR 50	HERNANDO			416732-4-52-01

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SR 50 / SR 700 / US 98 / CORTEZ BLVD.

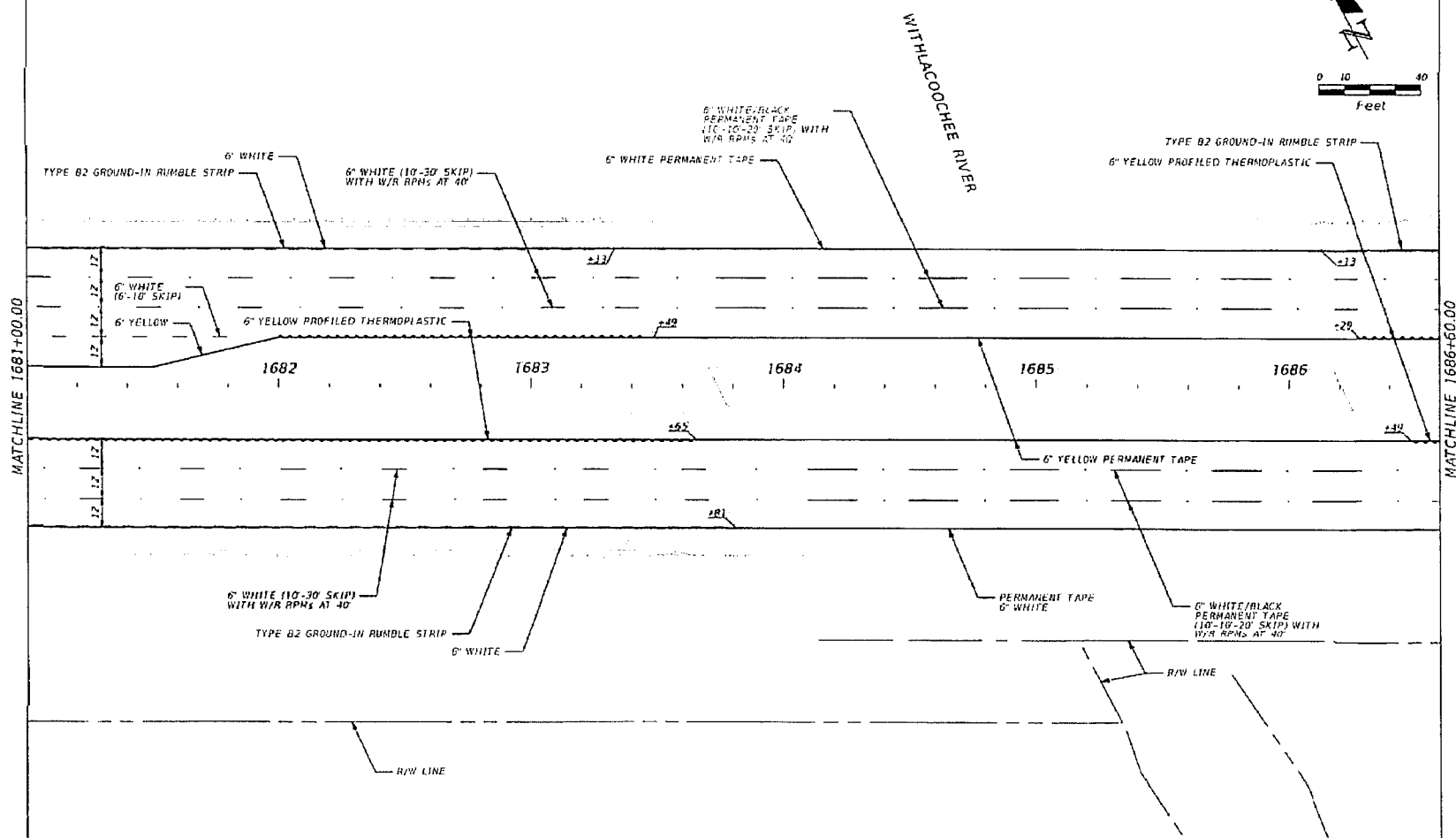


REVISIONS		DESCRIPTION	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN (15)	SHEET NO.
DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
6/16/21	△ ADDED SKIP LINE		SR 50	HERNANDO	015732-4-S2-01		S-28

MICHAEL J. DATES, P.E.
P.E. LICENSE NUMBER 49282
HDA Engineering, Inc.
4830 West Kennedy Blvd., Suite 400
Tampa, FL 33609-2549
CERTIFICATE OF AUTHORIZATION NO. 4211

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

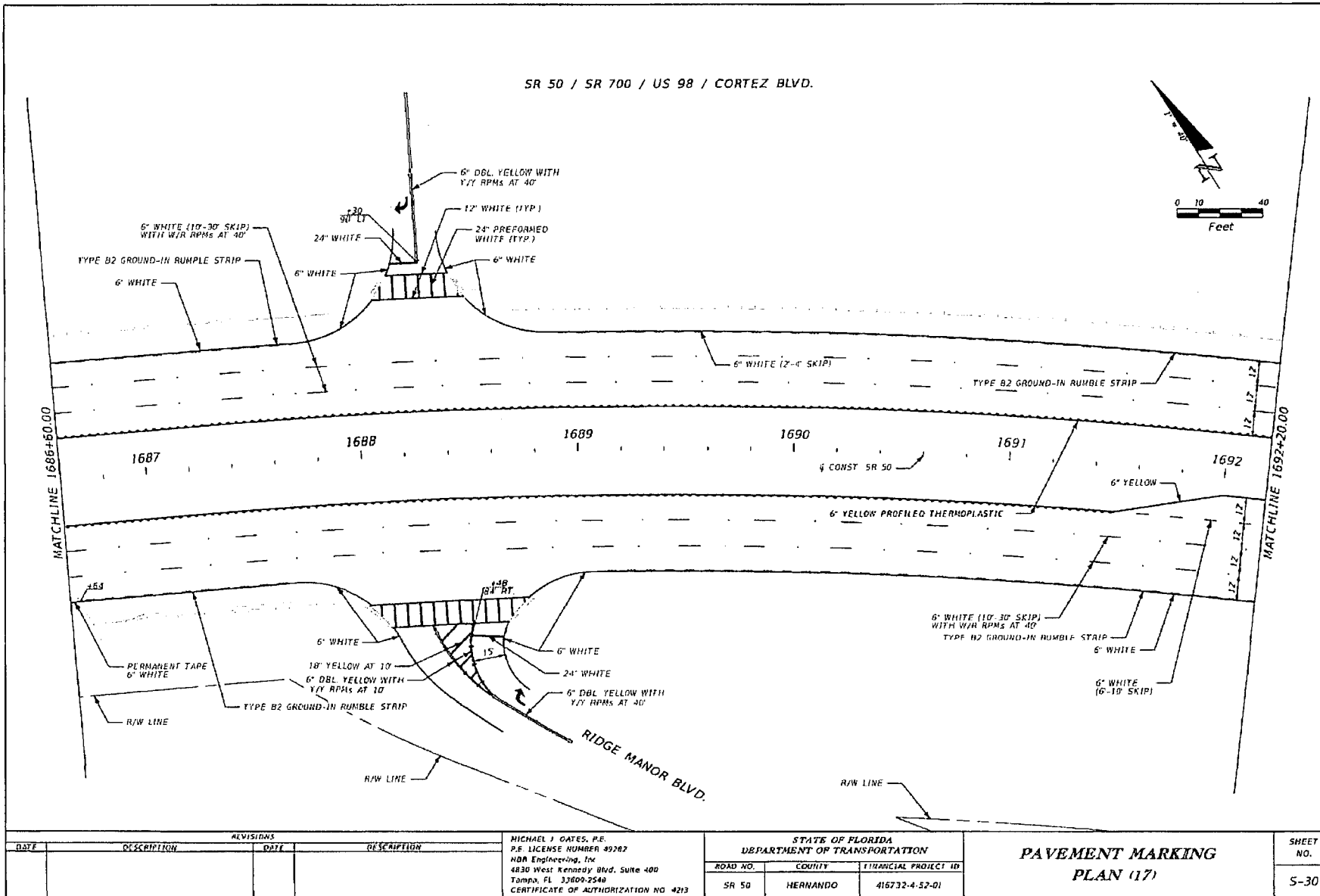
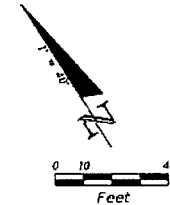
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REVISIONS				MICHAEL J. OATES, P.E. P.E. LICENSE NUMBER 49292 HDR Engineering, Inc. 4830 West Kennedy Blvd., Suite 400 Tampa, FL 33609-2548 CERTIFICATE OF AUTHORIZATION NO. 4213	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN (16)			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	S-29			
					SR 50	HERNANDO	416732-4-52-01				

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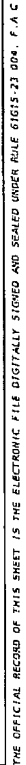
REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
				SR 50	HERNANDO	416732-4-52-01	5-30

MICHAEL J. GATES, P.E.
P.E. LICENSE NUMBER 49262
MJA Engineering, Inc.
4830 West Kennedy Blvd. Suite 400
Tampa, FL 33609-2548
CERTIFICATE OF AUTHORIZATION NO. 4213

PAVEMENT MARKING
PLAN (17)

6/7/2019 11:28:37 AM P:\105889\PROJECTS\2019\SR50\416732-4-52-01\105889.PLT 224

A diagram of a road cross-section. A line representing the road surface is labeled with an angle of $\theta = 40^\circ$. Below the road surface, there is a scale bar labeled "Feet" with markings at 0, 10, and 40.



REVISIONS				MICHAEL J. DATES, P.E. P.E. LICENSE NUMBER 49782 HDR Engineering, Inc. 4830 West Kennedy Blvd., Suite 400 Tampa, FL 33609-2548 CERTIFICATE OF AUTHORIZATION NO. 4419	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN (18)	SHEET NO. S-31
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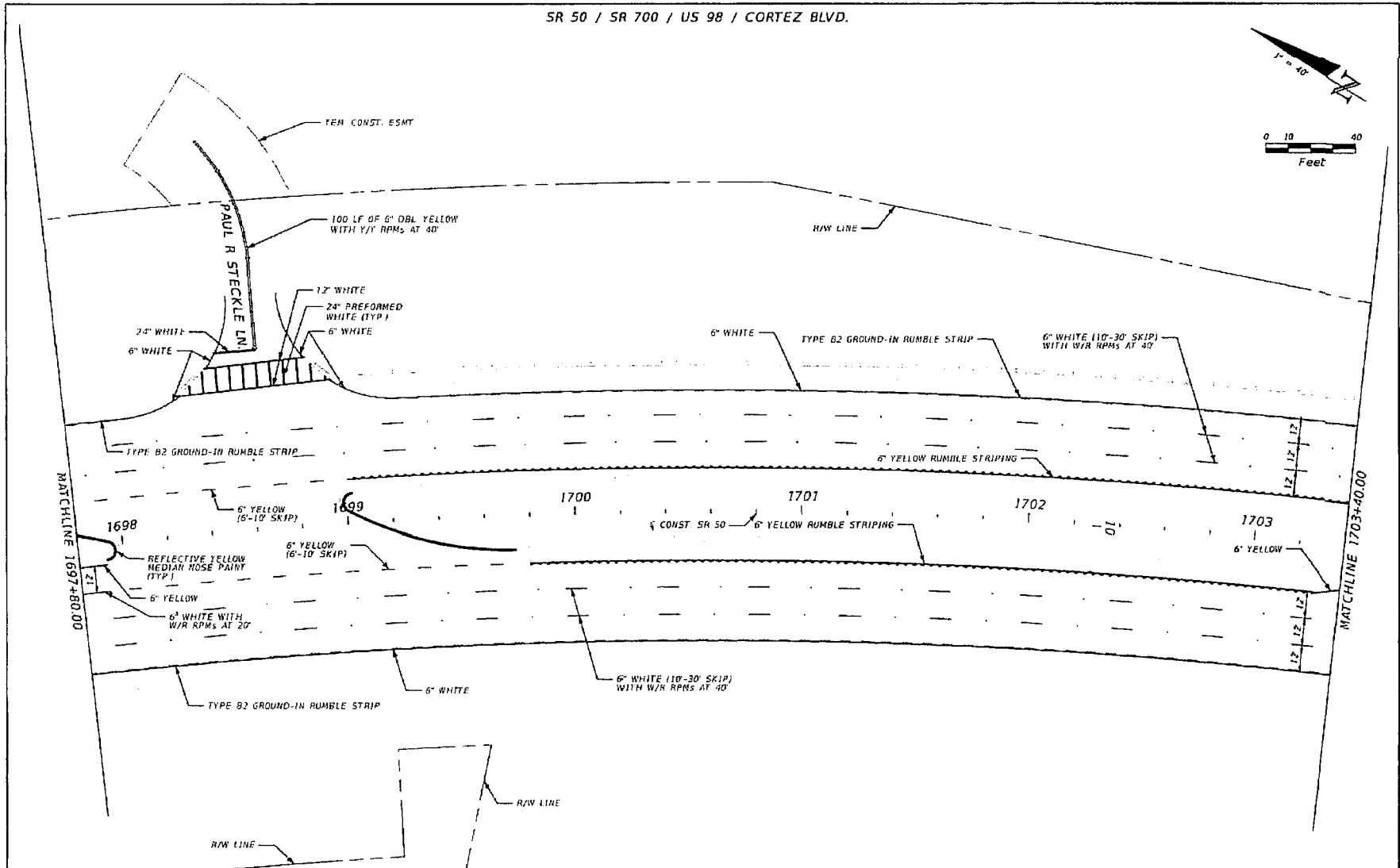
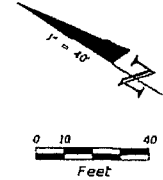
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SR 50 / SR 700 / US 98 / CORTEZ BLVD.

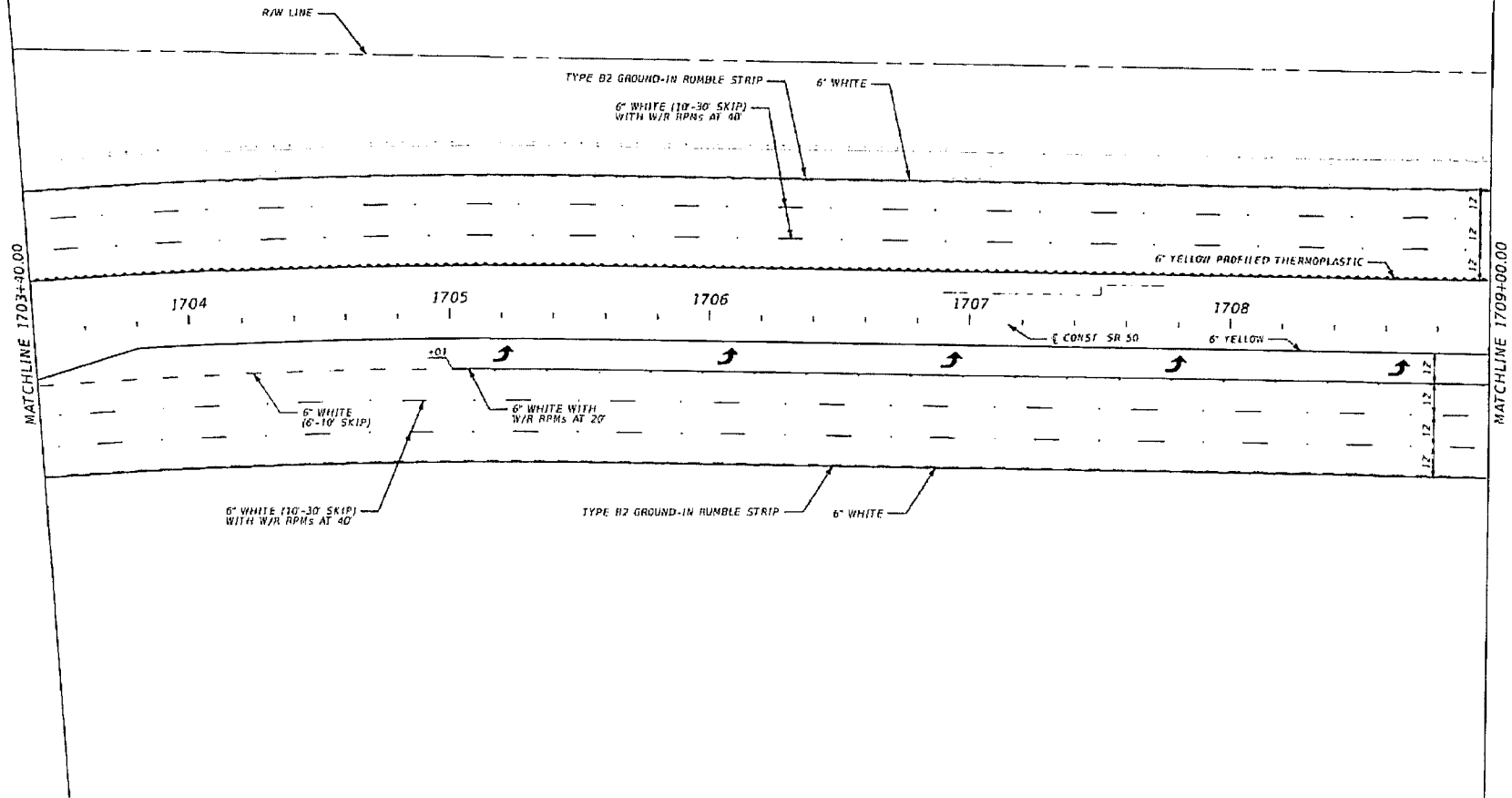
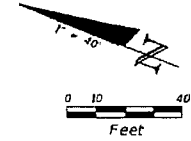


REVISIONS				MICHAEL J. OATES, P.E. P.E. LICENSE NUMBER 49282 HDR Engineering, Inc. 4830 West Kennedy Blvd. Suite 400 Tampa, FL 33609-2548 CERTIFICATE OF AUTHORIZATION NO. 4213	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN (19)	SHEET NO. 5-32
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 50	HERNANDO	416732-4-52-01		

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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SR 50 / SR 700 / US 98 / CORTEZ BLVD.



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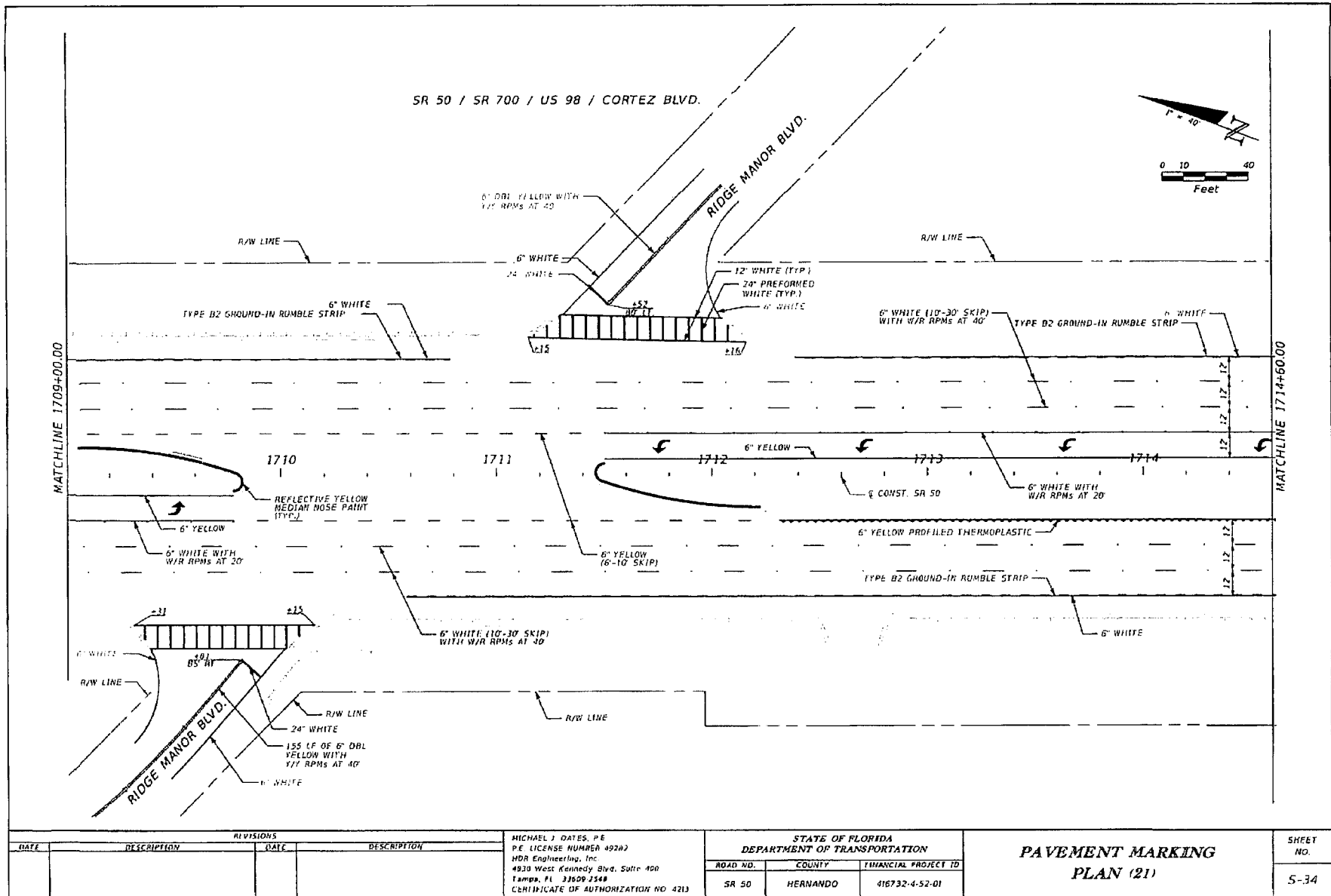
REVISIONS				MICHAEL I. DATES, P.E. P.E. LICENSE NUMBER 49287 HDR Engineering, Inc. 4830 West Kennedy Blvd., Suite 400 Tampa, FL 33609-2544 CERTIFICATE OF AUTHORIZATION NO. 4213	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN (20)	SHEET NO. S-33
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
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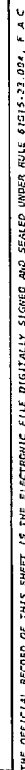
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4/17/2019

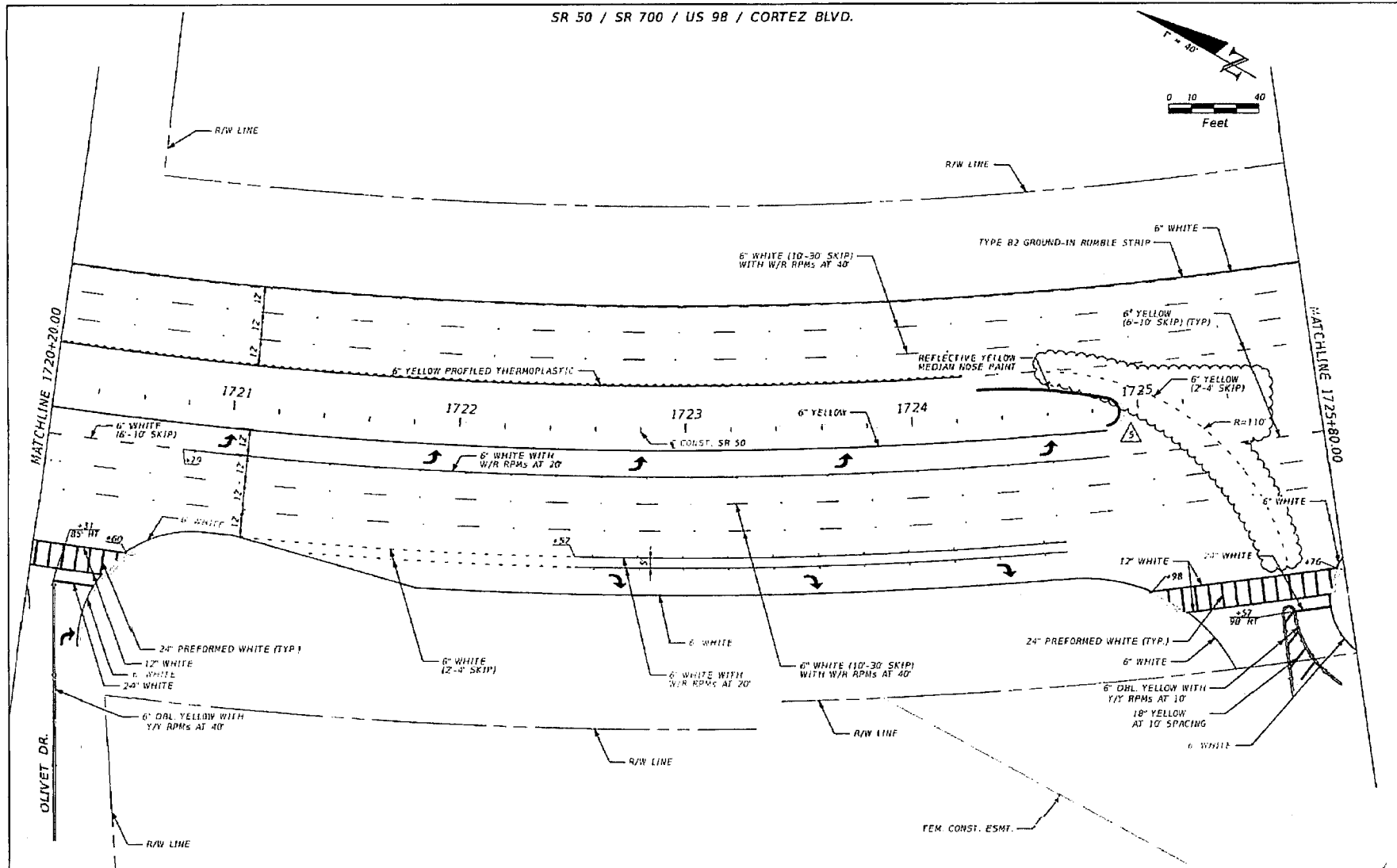
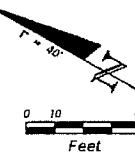
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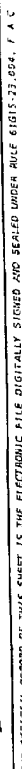
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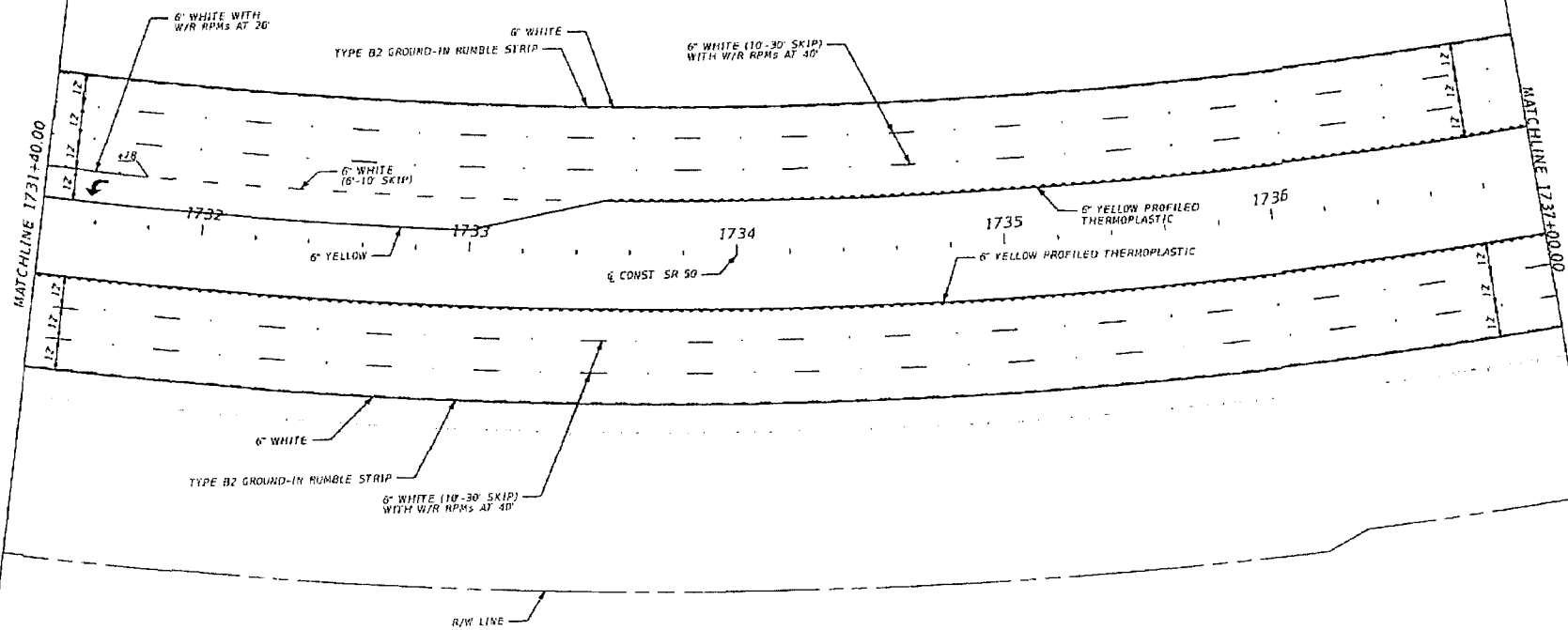
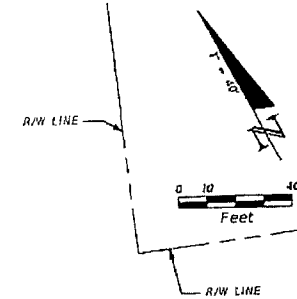
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REVISIONS		DESCRIPTION		STATE OF FLORIDA		PAVEMENT MARKING PLAN (23)	SHEET NO. S-36
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
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MICHAEL J. OATES, P.E.
P.E. LICENSE NUMBER 49282
NDR Engineering, Inc.
4830 West Kennedy Blvd., Suite 400
Tampa, FL 33609-2546
CERTIFICATE OF AUTHORIZATION NO. 4213



SR 50 / SR 700 / US 98 / CORTEZ BLVD.



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

MICHAEL J. GATES, P.E.
P.E. LICENSE NUMBER 49282
HDR Engineering, Inc.
4830 West Kennedy Blvd., Suite 400
Tampa, FL 33609-2548
CERTIFICATE OF AUTHORIZATION NO 4213

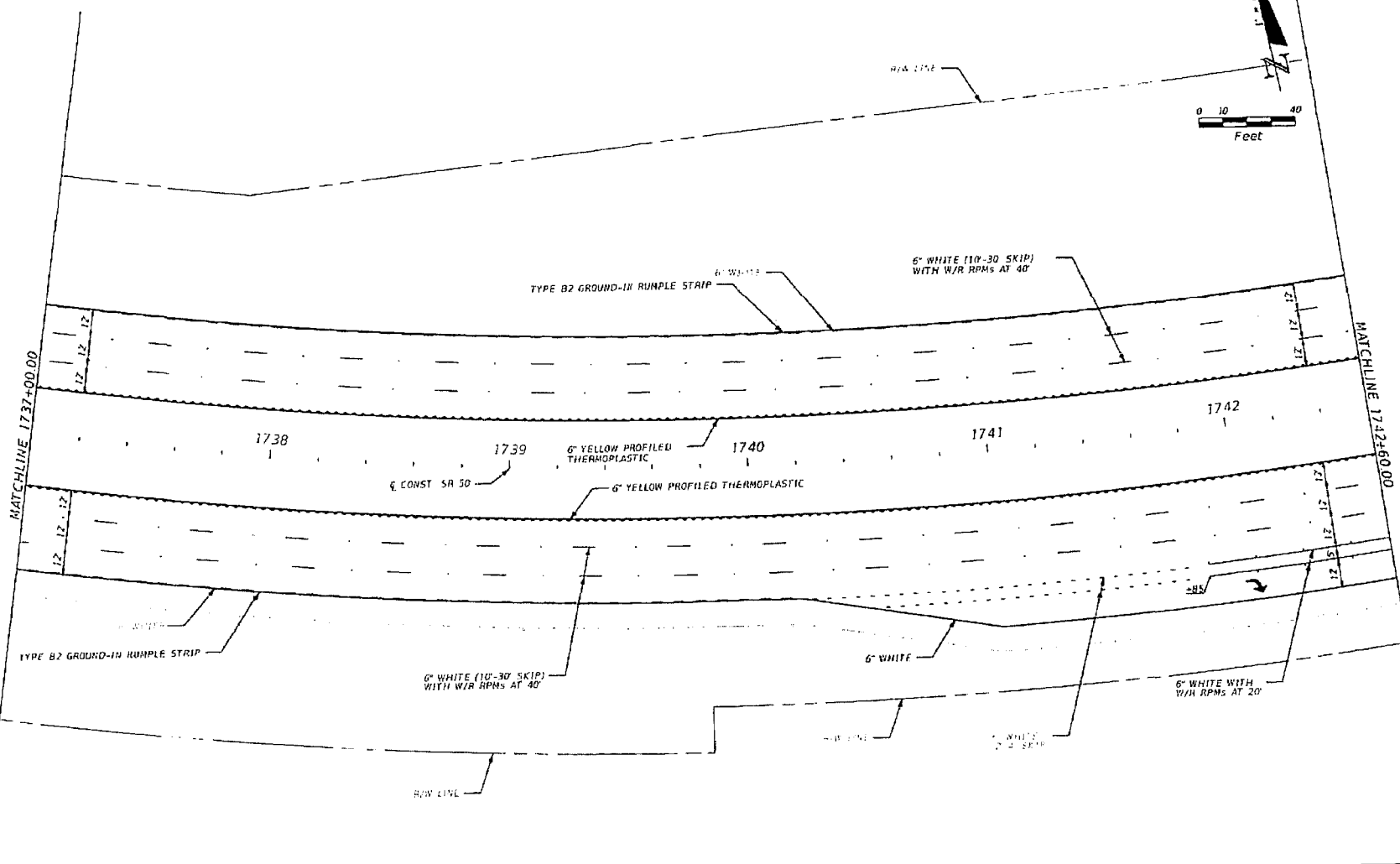
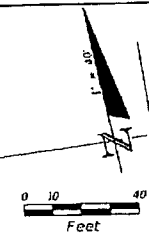
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO	COUNTY	FINANCIAL PROJECT ID
SR 50	HERNANDO	416732-4-52-01

**PAVEMENT MARKING
PLAN (25)**

SHEET
NO.
S-38

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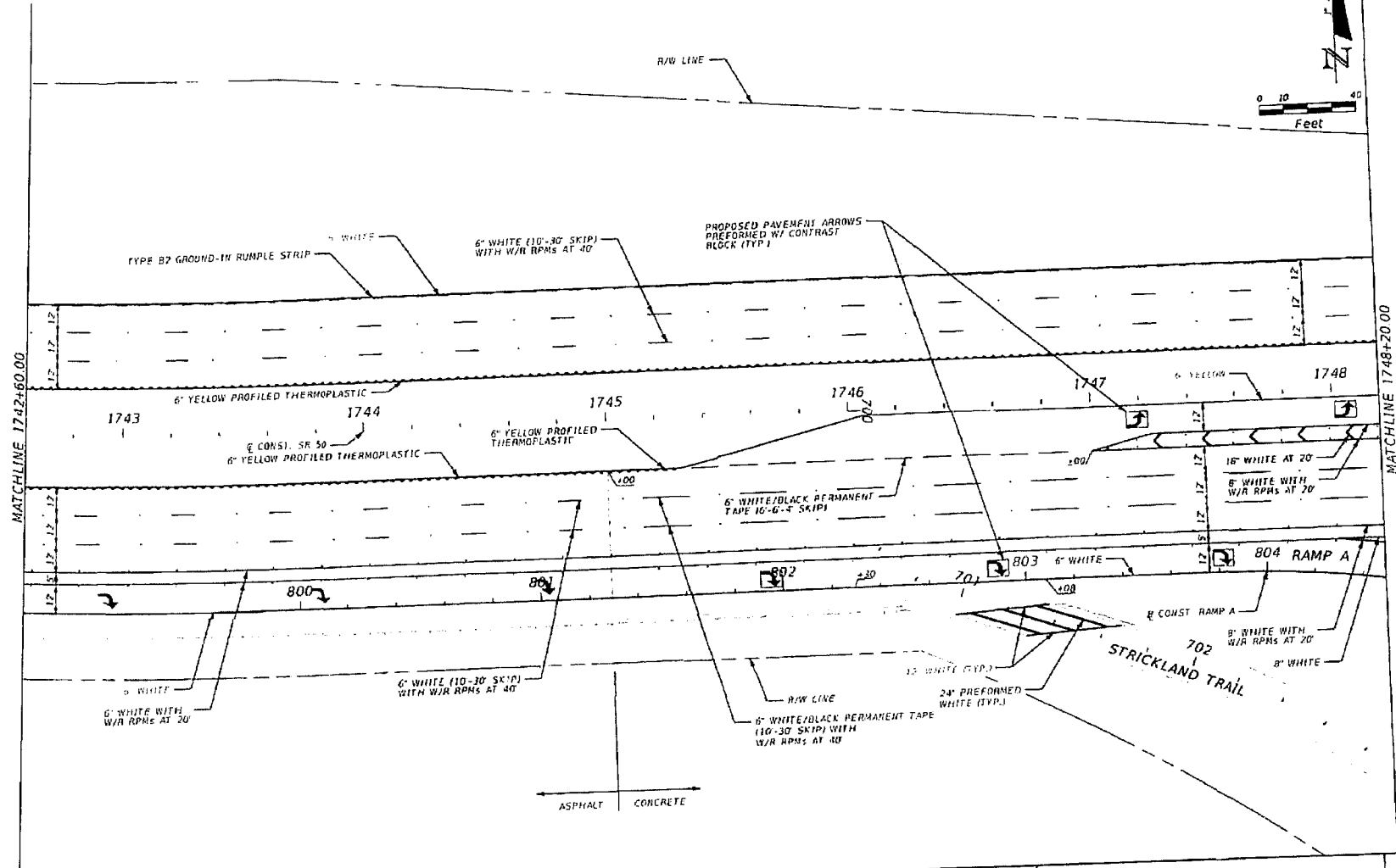
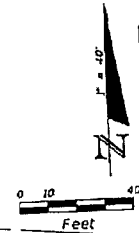
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REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT NO	
				SR 50	HERNANDO	616732-4-52-01	S-39

MICHAEL J. DATES, P.E.
P.E. LICENSE NUMBER 49282
HDR Engineering, Inc.
4830 West Kennedy Blvd, Suite 400
Tampa, FL 33609-2548
CERTIFICATE OF AUTHORIZATION NO. 4213

**PAVEMENT MARKING
PLAN (26)**

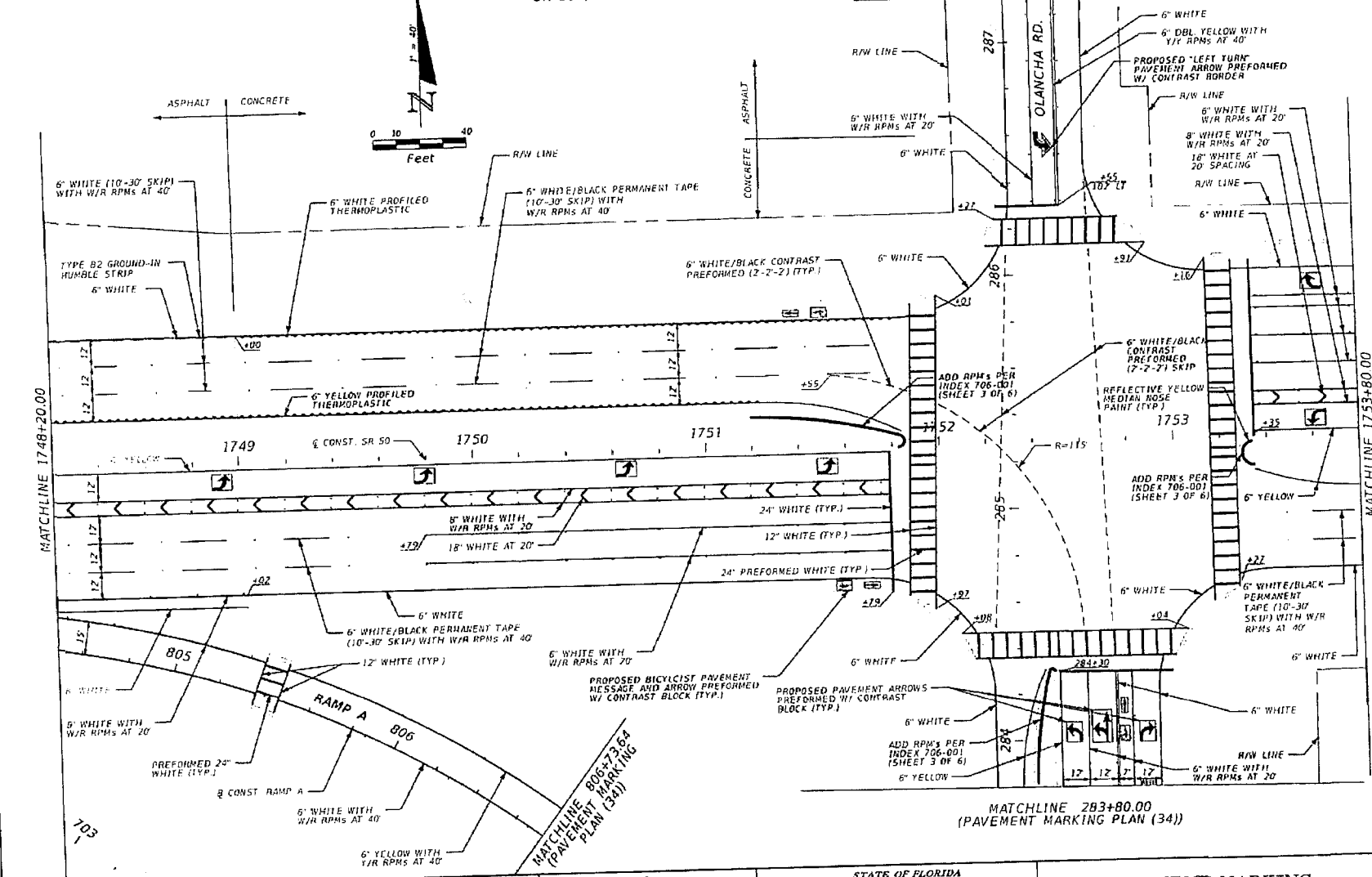
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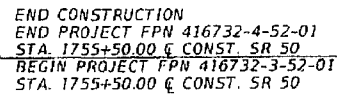
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DATE	DESCRIPTION	DATE				ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
						SR 50	HERNANDO	416732-4-52-01		

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SR 50 / SR 700 / US 98 / CORTEZ BLVD. MATCHLINE B 287+20.00 (PAVEMENT MARKING PLAN (35)



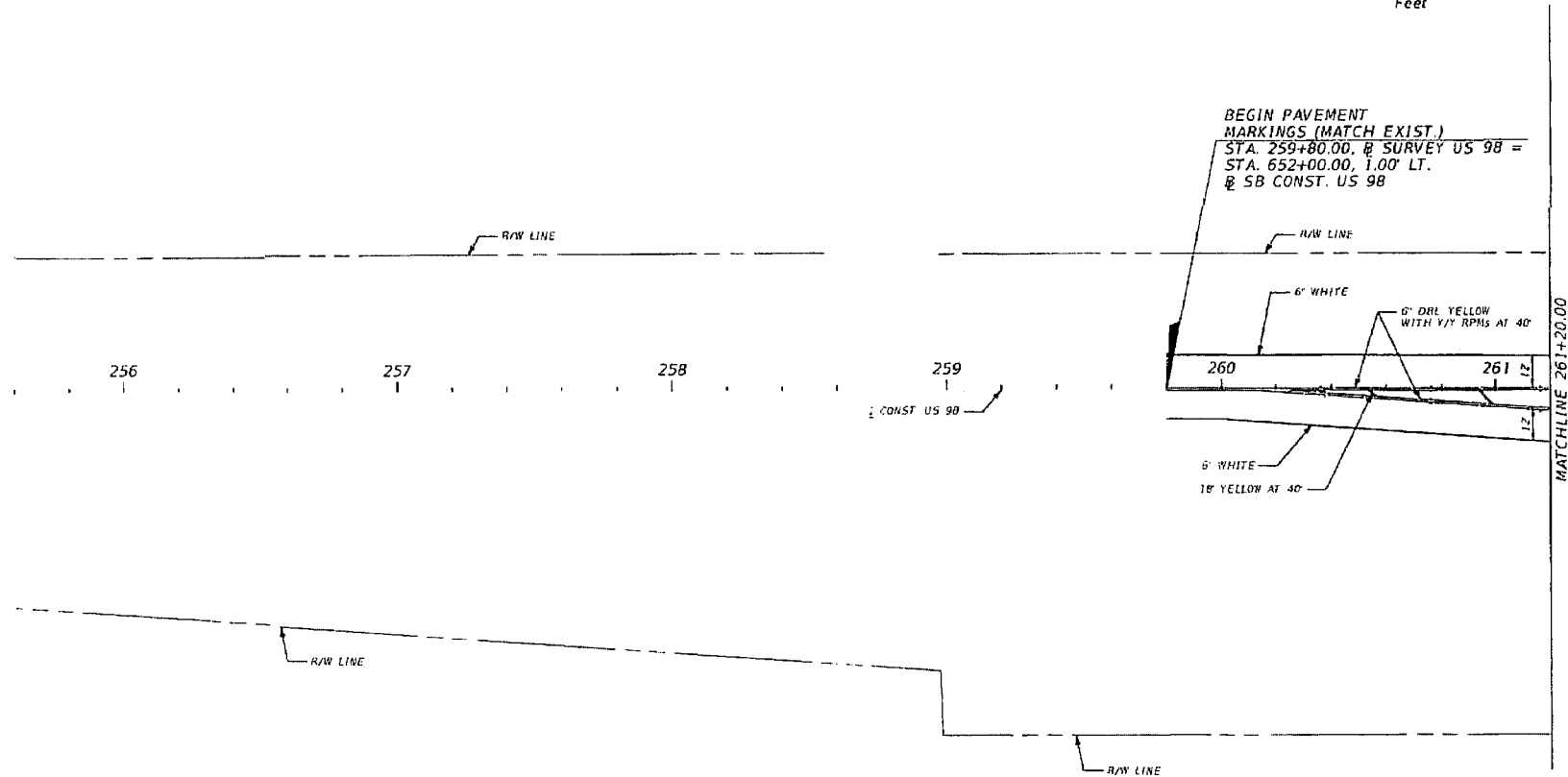
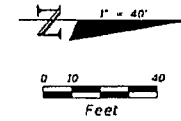
REVISIONS			MICHAEL J. OATES, P.E. P.E. LICENSE NUMBER 49207 HDR Engineering, Inc. 4830 West Kennedy Blvd Suite 400 Tampa, FL 33609-2548 CERTIFICATE OF AUTHORIZATION NO. 0213	DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING		NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PLAN (28)		5-41
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REVISIONS				MICHAEL J. GATES, P.E. P.E. LICENSE NUMBER 49282 HGA Engineering, Inc. 4830 West Kennedy Blvd., Suite 400 Tampa, FL 33609-2548 CERTIFICATE OF AUTHORIZATION NO. 4233	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN (29)		SHEET NO
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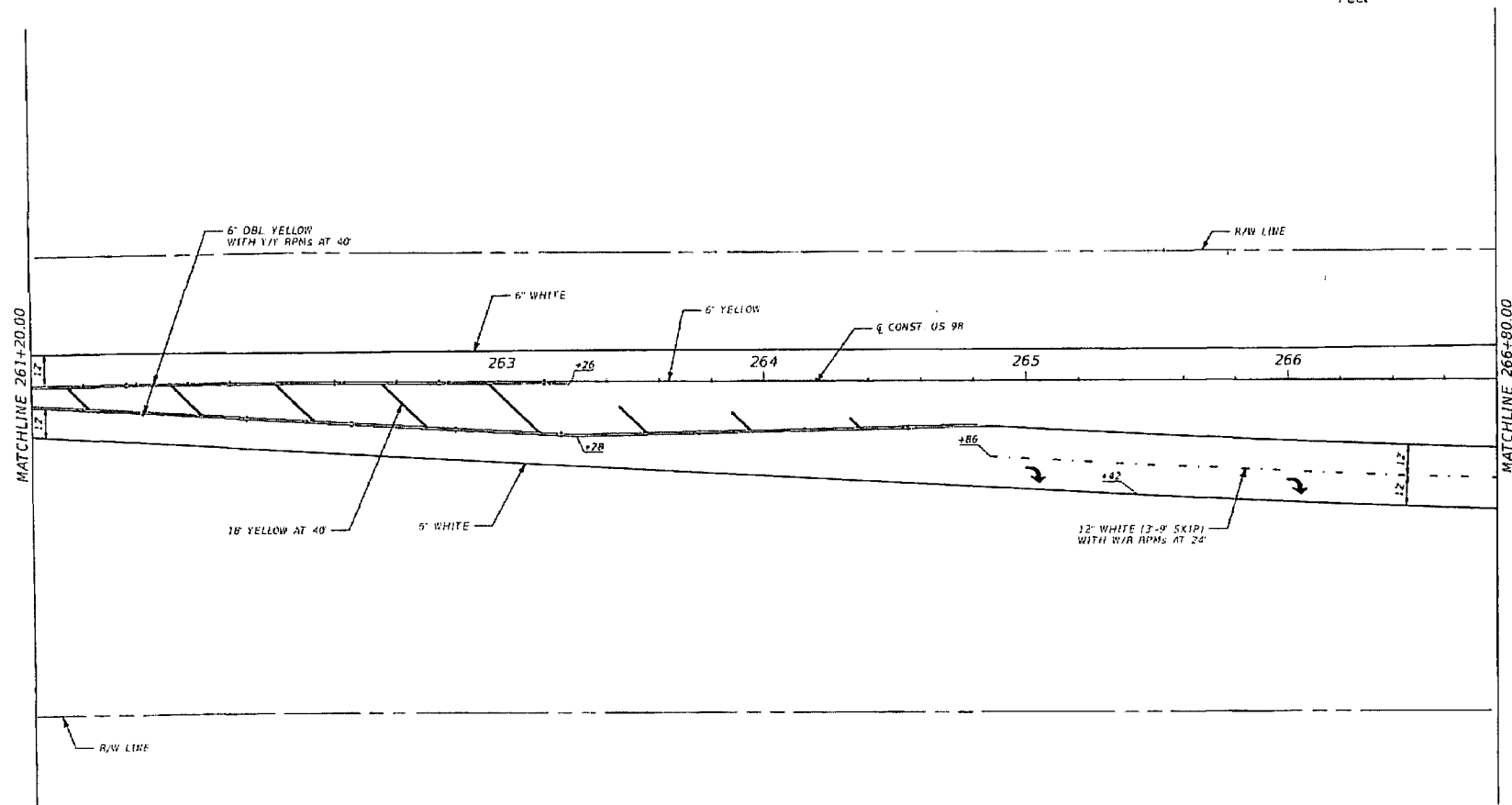
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McKETHAN RD. (US 98)



REVISIONS		DESCRIPTION	MICHAEL J. OATES, P.E. P.E. LICENSE NUMBER 49282 HOB Engineering, Inc. 4830 West Kennedy Blvd., Suite 400 Tampa, FL 33609-7548 CERTIFICATE OF AUTHORIZATION NO. 4213	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN (50)	SHEET NO. S-43
DATE	DESCRIPTION			ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
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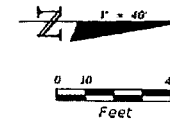
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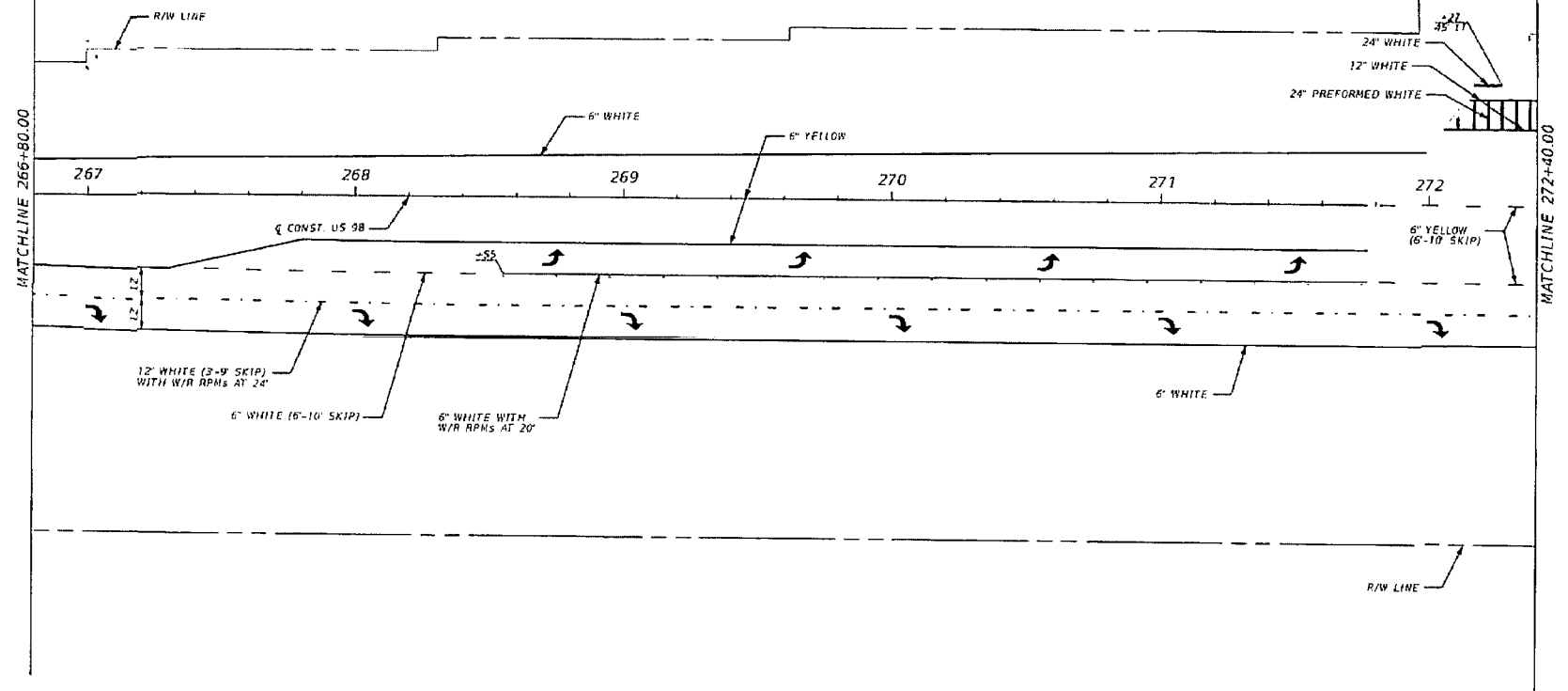
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THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61015-23 DDA . F. A. C

McKETHAN RD. (US 98)



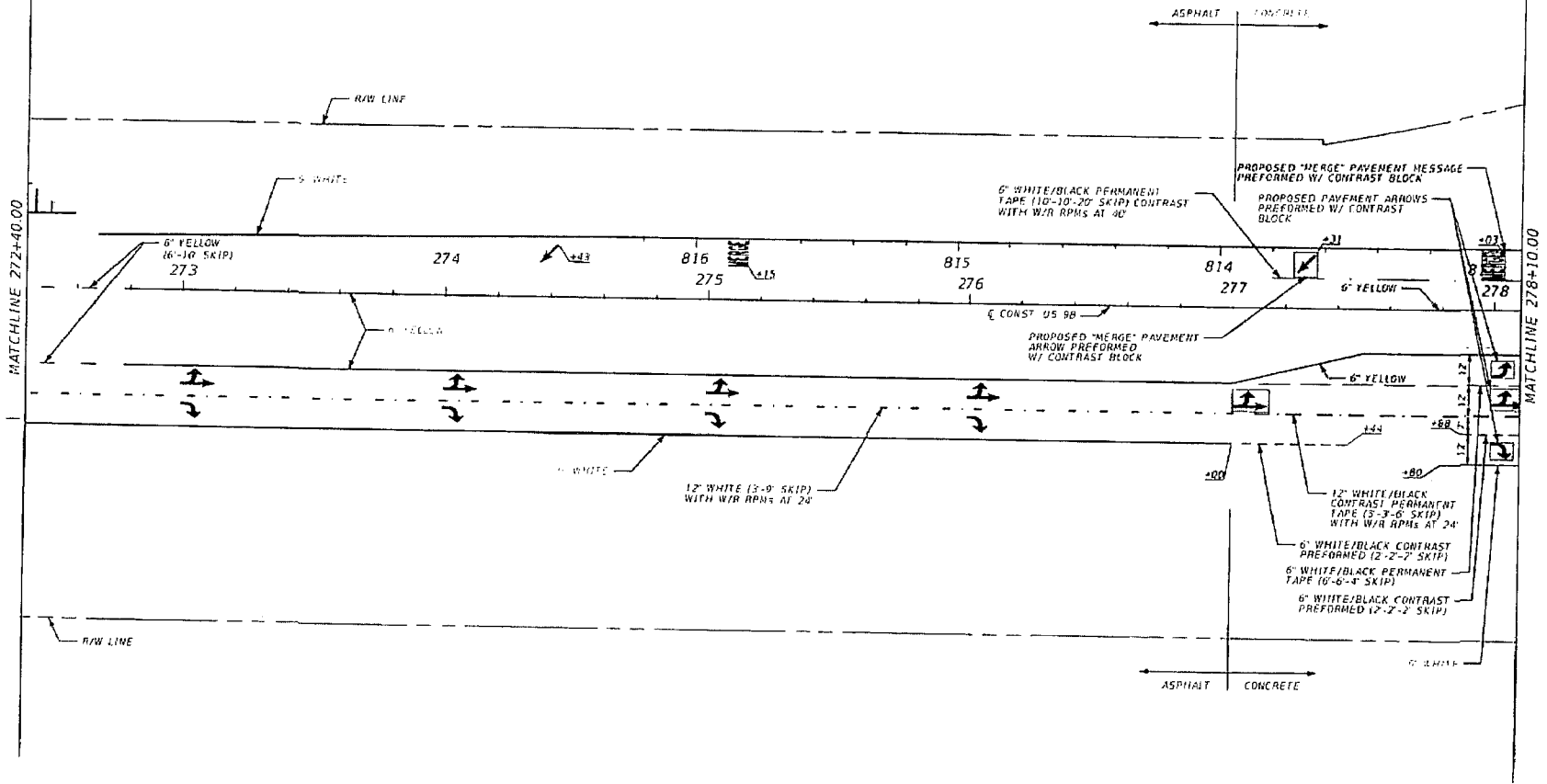
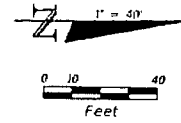
MAUMEE TRAK



REVISIONS				MICHAEL J. OATES, P.E. P.E. LICENSE NUMBER 49282 HDI Engineering, Inc. 4830 West Kennedy Blvd., Suite 400 Tampa, FL 33609-2548 CERTIFICATE OF AUTHORIZATION NO. 4213	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN (32)	SHEET NO. S-45
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
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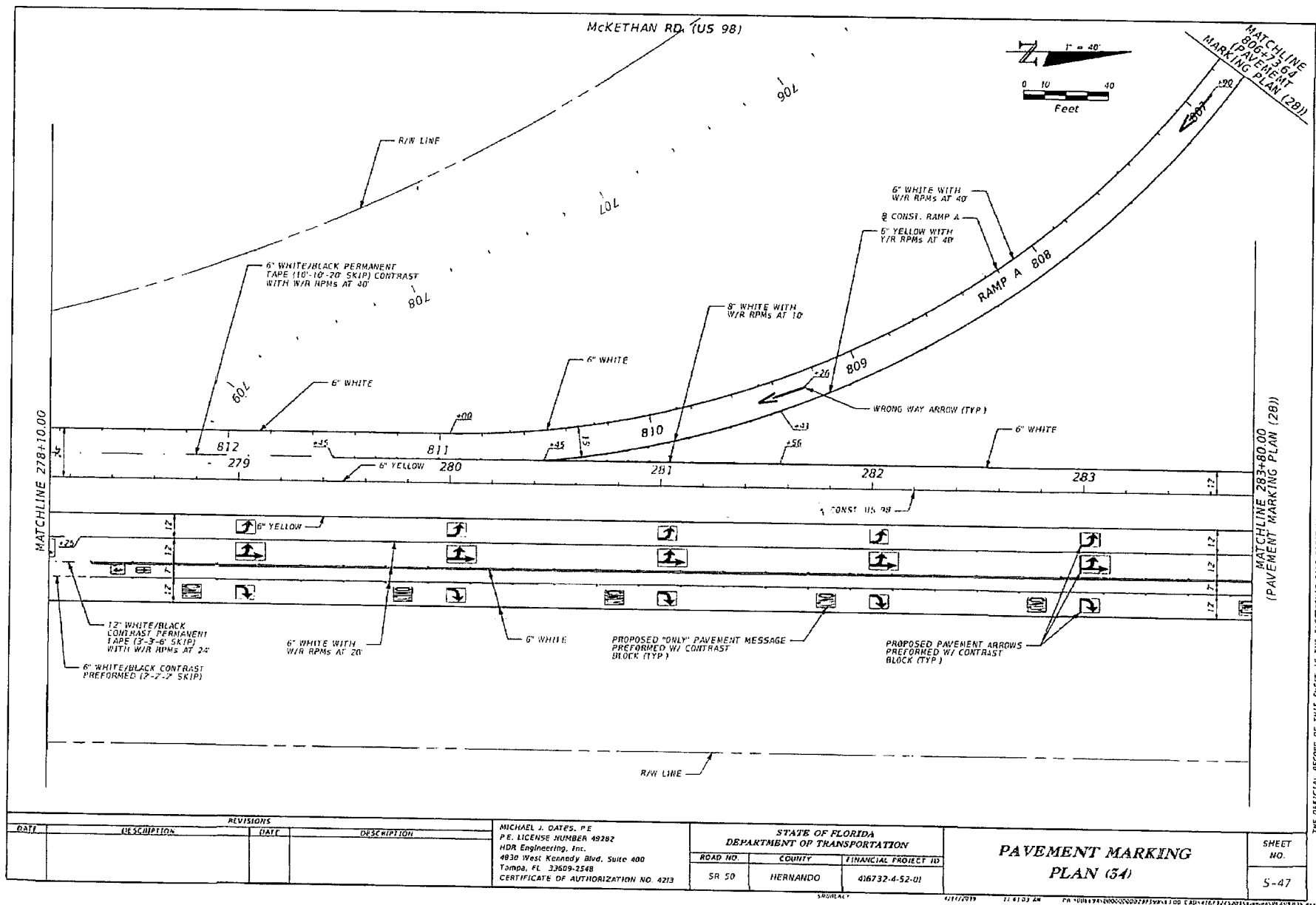
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-22.004, F.A.C.

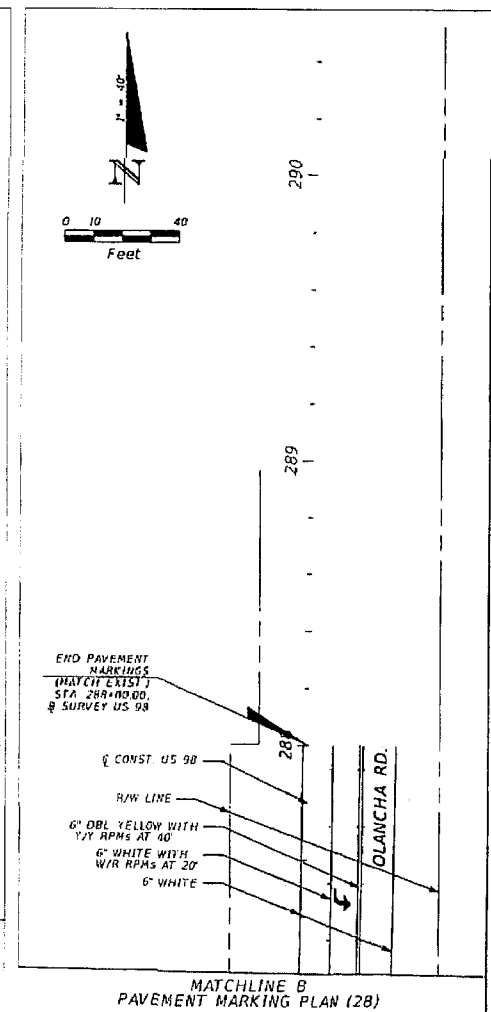
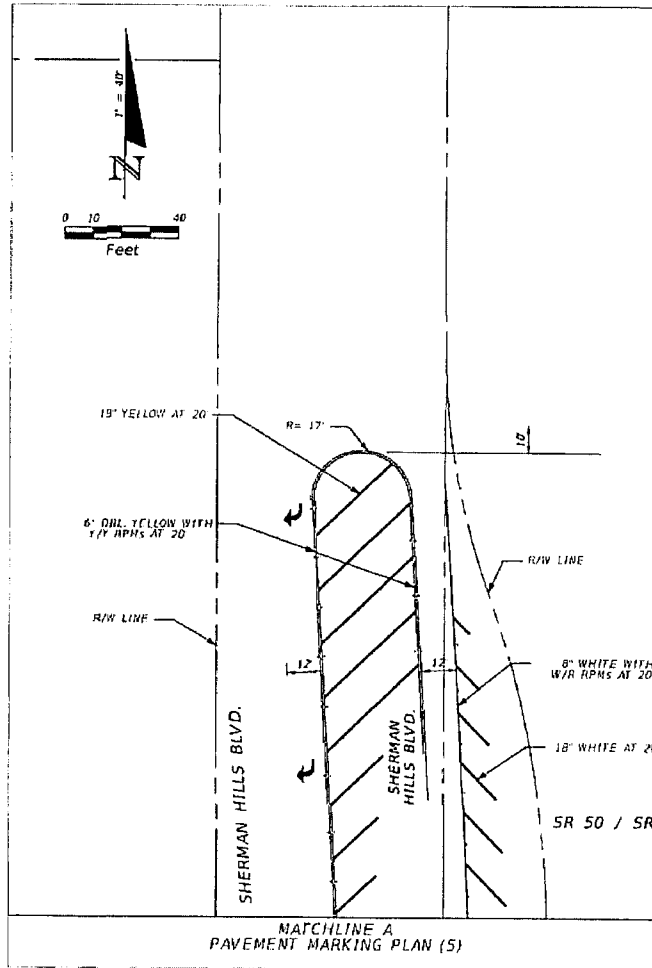
McKETHAN RD. (US 98)



REVISIONS				MICHAEL J. GATES, P.E. P.E. LICENSE NUMBER 49782 HDR Engineering, Inc. 4830 West Kennedy Blvd, Suite 400 Tampa, FL 33609-2548 CERTIFICATE OF AUTHORIZATION NO. 4713	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN (33)	SHEET NO. S-46
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 50	HERNANDO	415732-4-52-01		

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61H15-23.004, F.A.C.





REVISIONS				MICHAEL J. OATES, P.E. P.E. LICENSE NUMBER 49282 HDR Engineering, Inc. 4030 West Kennedy Blvd., Suite 400 Tampa, FL 33609-3548 CERTIFICATE OF AUTHORIZATION NO. 4213	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PAVEMENT MARKING PLAN (35)	SHEET NO. 5-48
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 50	HERNANDO	416732-4-52-01		

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

**STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
CONTRACT PLANS**

FINANCIAL PROJECT ID 416732-3-52-01
(FEDERAL FUNDS)

HERNANDO COUNTY (08070)

STATE ROAD NO. 50 (CORTEZ BLVD.)

FROM EAST OF US 98/MCKETHAN RD TO EAST OF US 301

SIGNING AND PAVEMENT MARKING PLANS

INDEX TO SIGNING AND PAVEMENT MARKING PLANS

SHEET NO. SHEET DESCRIPTION

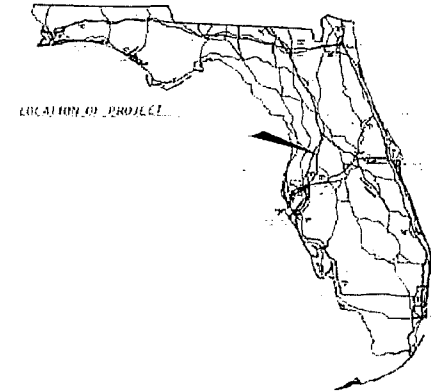
THRU   S 2B
KEY SHEET
SIGNATURE SHEET

S-3 THRU S-6 TABULATION OF QUANTITIES

S-7 GENERAL NOTES

S-8 THRU S-32 SIGNING AND PAVEMENT MARKING PLAN

S-33 THRU S-37 GUIDE SIGN WORKSHEET



LOCATION OF PROJECT

 **SIGNING AND
PAVEMENT MARKING PLANS**
ENGINEER OF RECORD
JANEY B WALLS, P.E.
P.E. NO. 76169
BORGESS & NIPLE, INC.
10006 N. DALT MADRID HIGHWAY, SUITE 201
TAMPA, FL 33618
CONTRACT NO. 1-9808
VENDOR NO. 24 2576100001
CERTIFICATE OF AUTHORIZATION NO. 9953

KEY SHEET REVISIONS	
DATE	DESCRIPTION
08/01/20	 ADDED SHEET S-3A AND UPDATED ENGINEER OF RECORD INFORMATION
07/02/21	 REMOVED SHEET S-2B

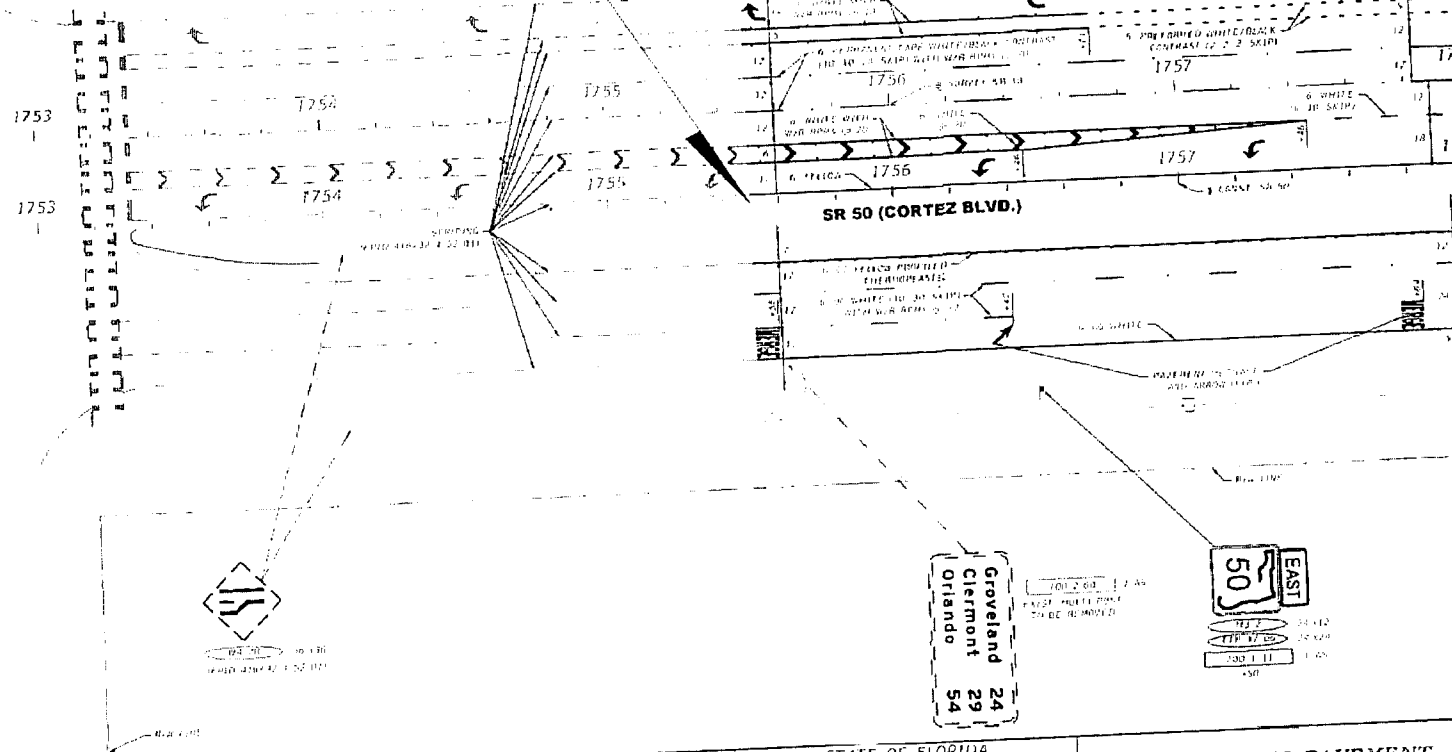
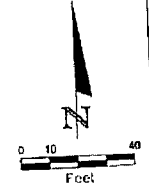
FOOT PROJECT MANAGER:
KEVIN LEE

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
T7306	20	S-1

OLANCHA RD.

MCKETHAN RD.

BEGIN PROJECT
BEGIN CONSTRUCTION
BEGIN SIGNING AND PAVEMENT MARKING
MATCH FPD 416/32-4-52-011
STA 1755+50.00 @ CONST. SR 50

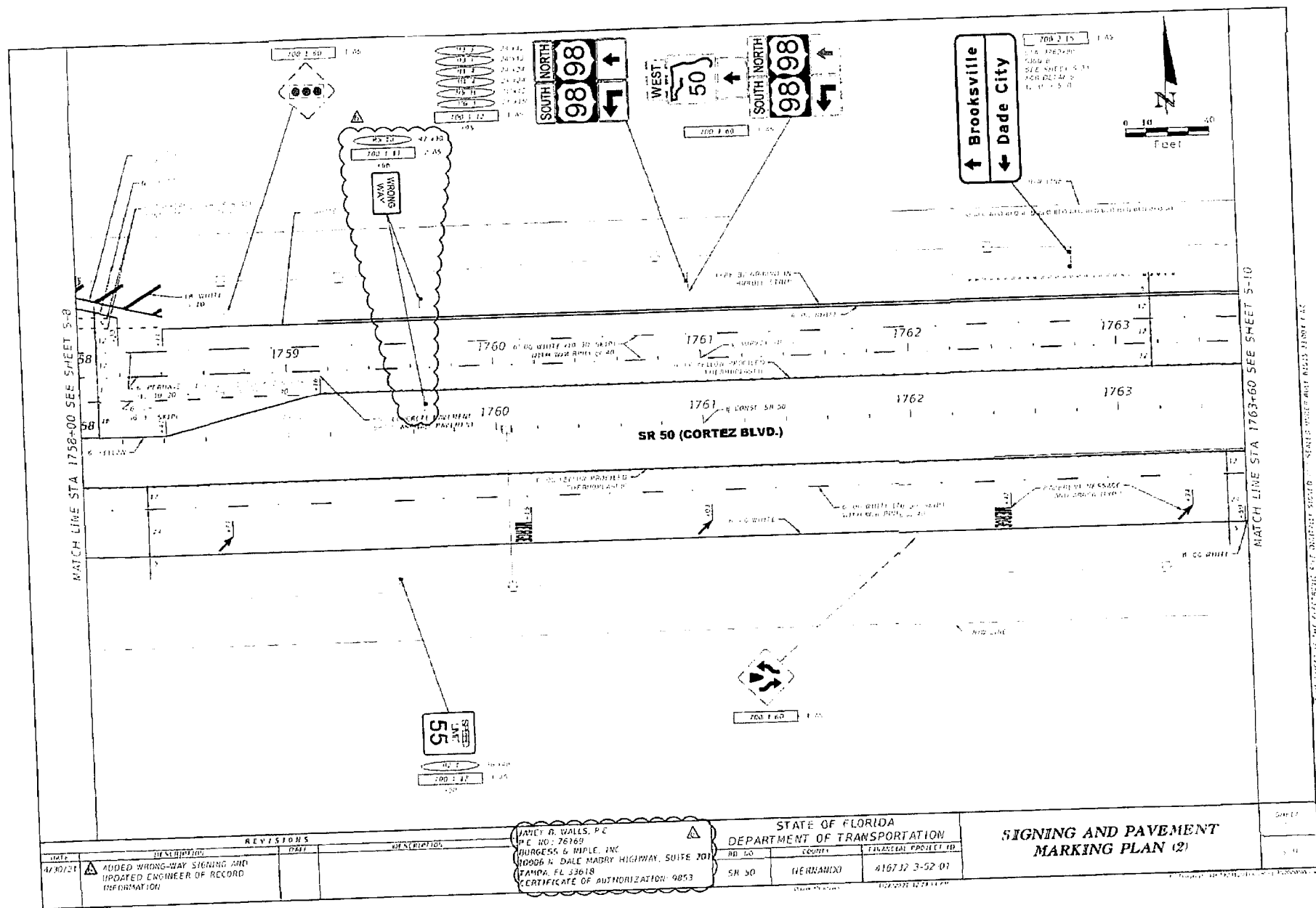


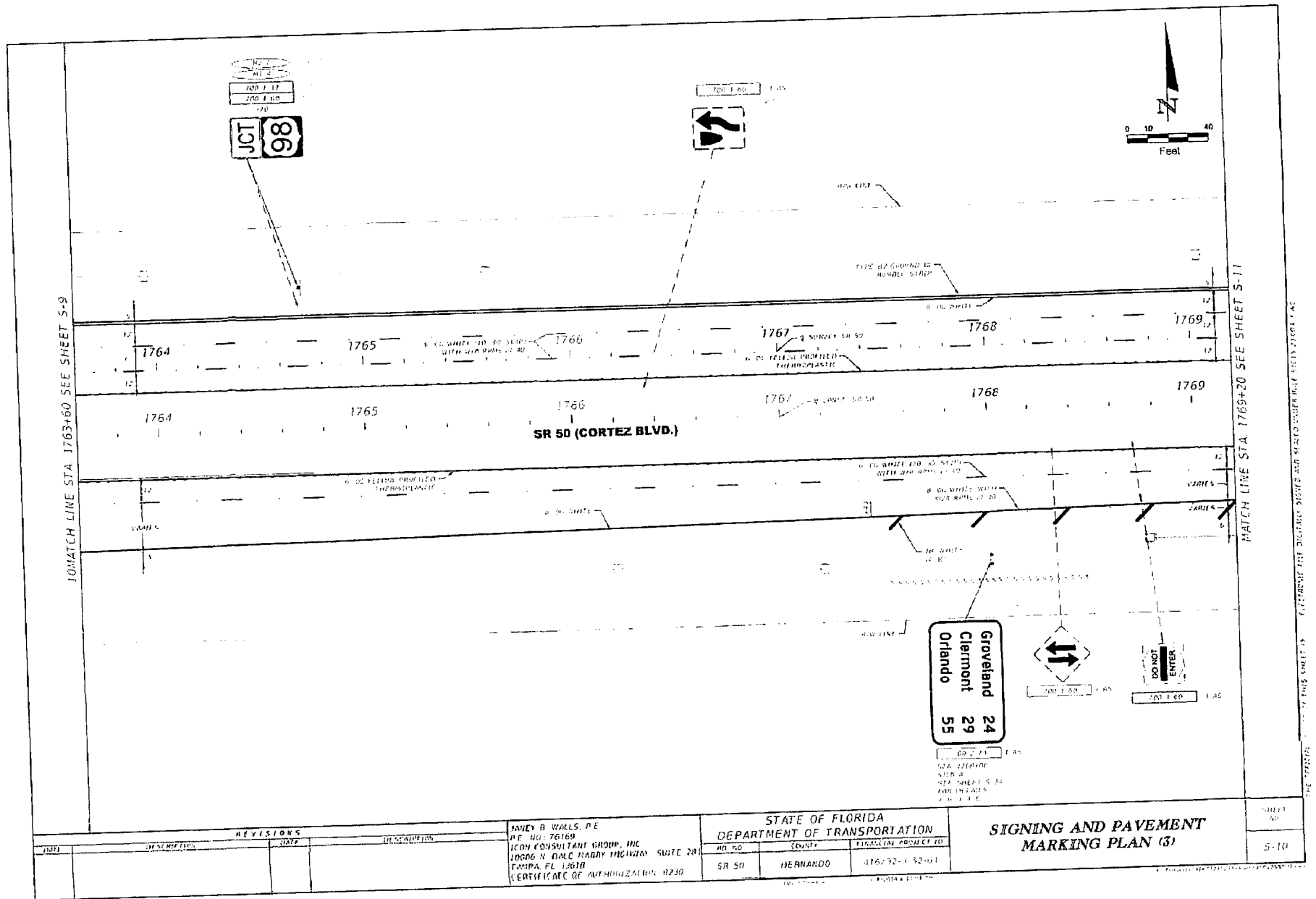
MATCH LINE STA 1758+00 SEE SHEET S-9

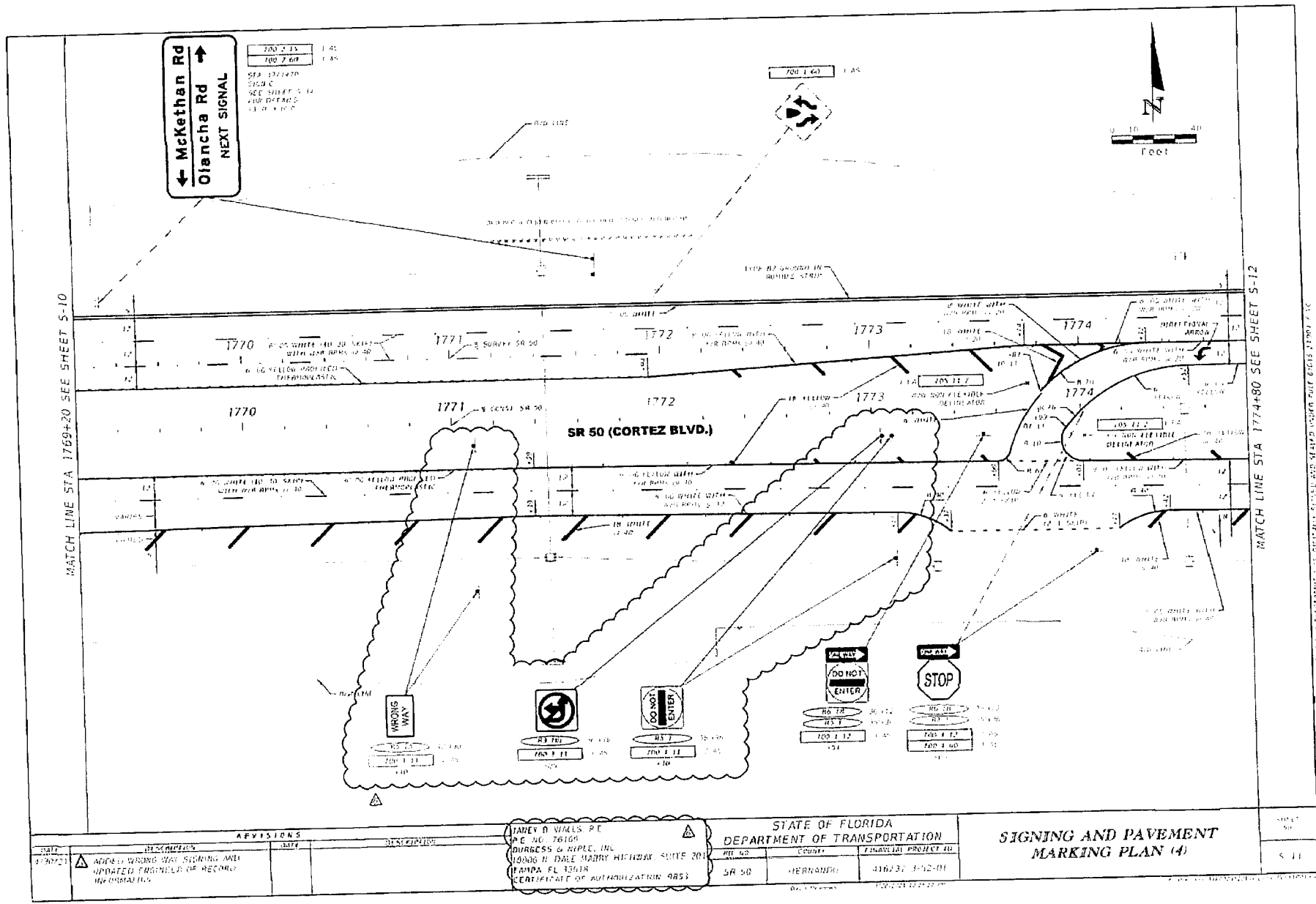
REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION				SIGNING AND PAVEMENT MARKING PLAN (1)	SHEET S-8
DATE	DESCRIPTION	DATE	DESCRIPTION	AP. NO.	COUNTY	PROJECT NO.	DATE		
				SR 50	HERNANDO	416/32-4-52-01			

JAMES H. GALLS, P.E.
P.E. NO. 76169
JCON CONSULTANT GROUP, INC.
10006 N. DALL MANOR HIGHWAY SUITE 201
TAMPA, FL 33618
CERTIFICATE OF AUTHORIZATION: 0030

THIS PLAN IS THE PROPERTY OF THE STATE OF FLORIDA. IT IS TO BE USED ONLY FOR THE PROJECT AND LOCATION SPECIFICALLY NOTED AND MAY BE REPRODUCED OR COPIED WITHOUT PERMISSION OF THE STATE OF FLORIDA.



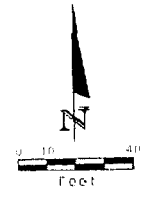




← McKethan Rd
 Olancha Rd →
 NEXT SIGNAL

200 2 15 1.45
 100 2 60 1.45
 STA 1771+20
 SIGN C
 SEE SHEET S-14
 FOR DETAILS
 13 0 0 10 0

200 1 60 1.45



MATCH LINE STA 1769+20 SEE SHEET S-10

MATCH LINE STA 1774+80 SEE SHEET S-12

SR 50 (CORTEZ BLVD.)

WRONG WAY
 W 11 1 1 1
 100 1 1 1
 100 1 1 1

DO NOT ENTER
 W 11 1 1 1
 100 1 1 1
 100 1 1 1

DO NOT ENTER
 W 11 1 1 1
 100 1 1 1
 100 1 1 1

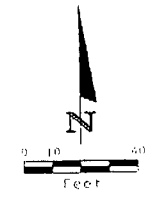
STOP
 W 11 1 1 1
 100 1 1 1
 100 1 1 1

STOP
 W 11 1 1 1
 100 1 1 1
 100 1 1 1

REVISIONS		DESCRIPTION		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SIGNING AND PAVEMENT MARKING PLAN (4)
DATE	BY	DATE	DESCRIPTION	PROJECT NO.	COUNTY	FINANCIAL PROJECT ID	
3/20/23	JANUARY		ADDED WRONG WAY SIGNING AND UPDATED ENGINEER OF RECORD INFORMATION	SR 50	HERNANDO	416730 1-12-01	5 11

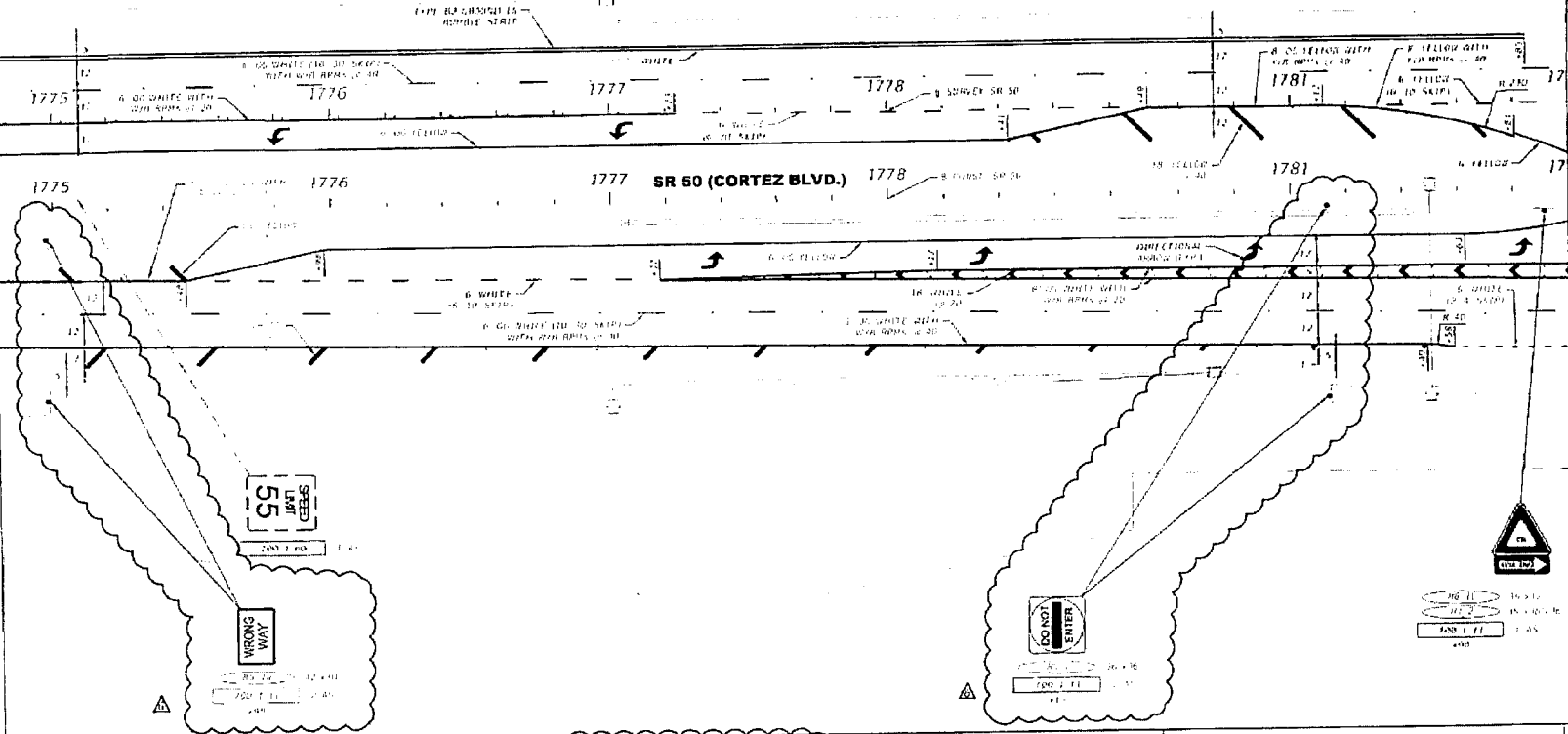
JANEY D. WILKS, P.E.
 P.E. NO. 76168
 DURGESS & REPLE, INC.
 10006 N. DALE MADRY HIGHWAY, SUITE 201
 TAMPA, FL 33618
 CERTIFICATE OF AUTHORIZATION: 0853

THIS PLAN IS THE PROPERTY OF THE FLORIDA DEPARTMENT OF TRANSPORTATION AND SHALL BE RETURNED TO THE AGENCY WHEN REQUESTED.



MATCH LINE STA 1774+80 SEE SHEET S-11

MATCH LINE STA 1782+00 SEE SHEET S-13

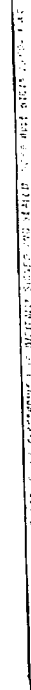


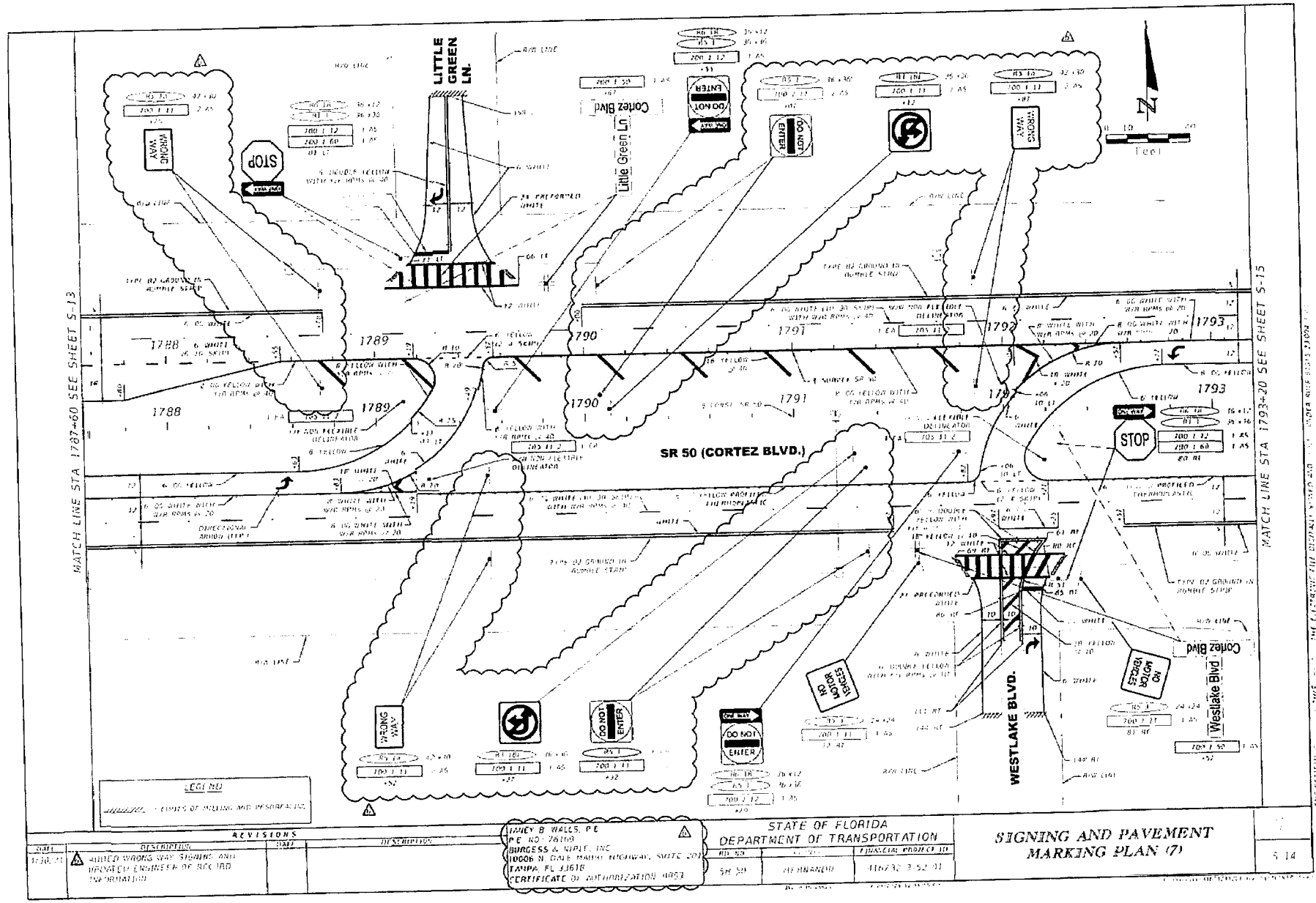
REVISIONS		DESCRIPTION	DATE	BY
NO.	DATE			
1	9/30/21	ADDED WRONG WAY SIGNING AND UPDATED ENGINEER OF RECORD INFORMATION		

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SIGNING AND PAVEMENT MARKING PLAN (6)	SHEET NO. S-12
PROJECT NO. SR 50	COUNTY HERNANDO	TRACELAND PROJECT NO. 416732 3-52 01		

DRAWN BY JANEY D. WALKER P.E. NO. 16169 DURGESS & NIPLE, INC. 10006 N. DALE HARRY HIGHWAY, SUITE 201 TAMPA, FL 33618 CERTIFICATE OF AUTHORIZATION 0953	SCALE 1" = 40'
--	-------------------

THIS PLAN AND SPECIFICATIONS ARE THE PROPERTY OF DURGESS & NIPLE, INC. AND SHALL BE KEPT IN THE FILES OF THE PROJECT.

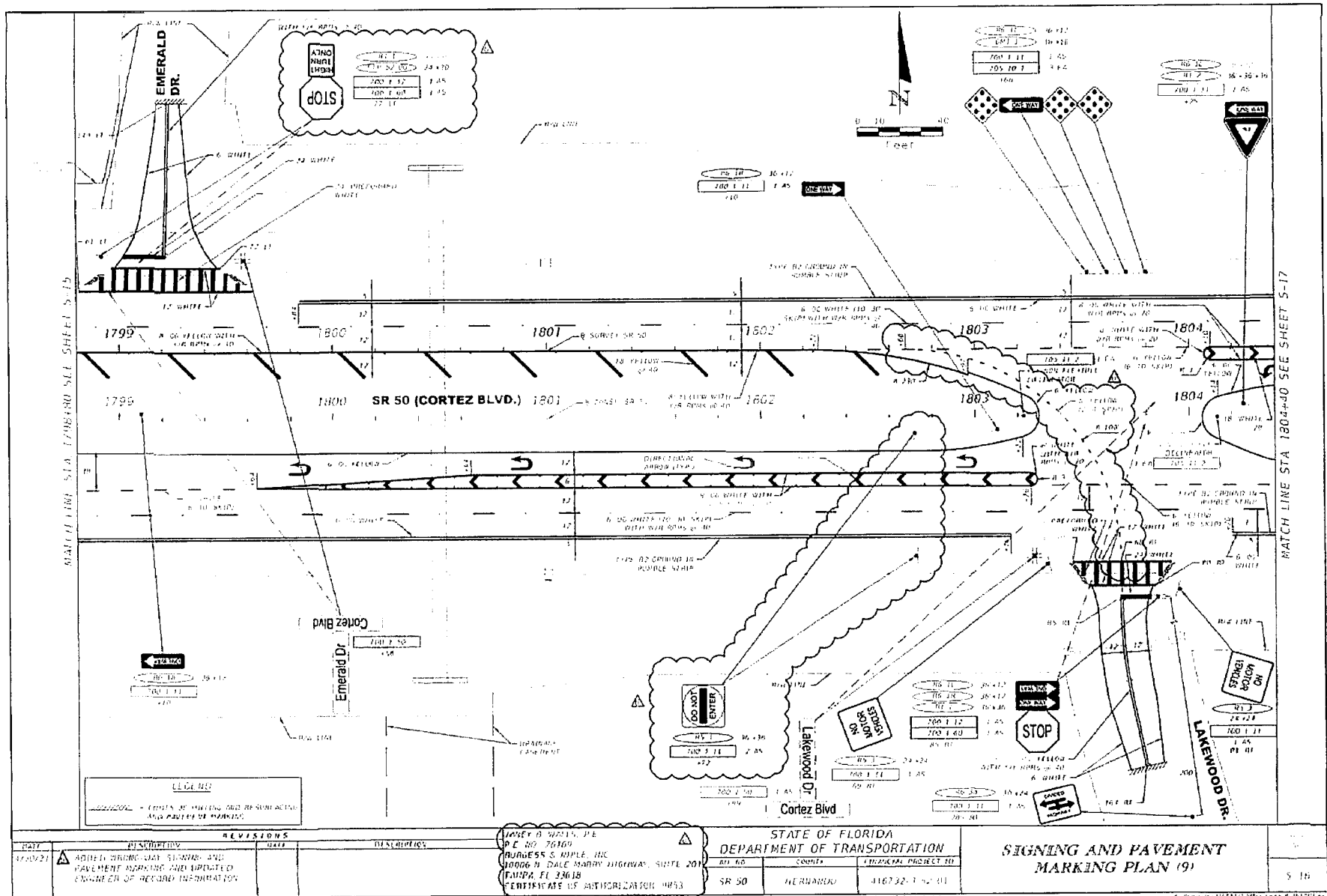


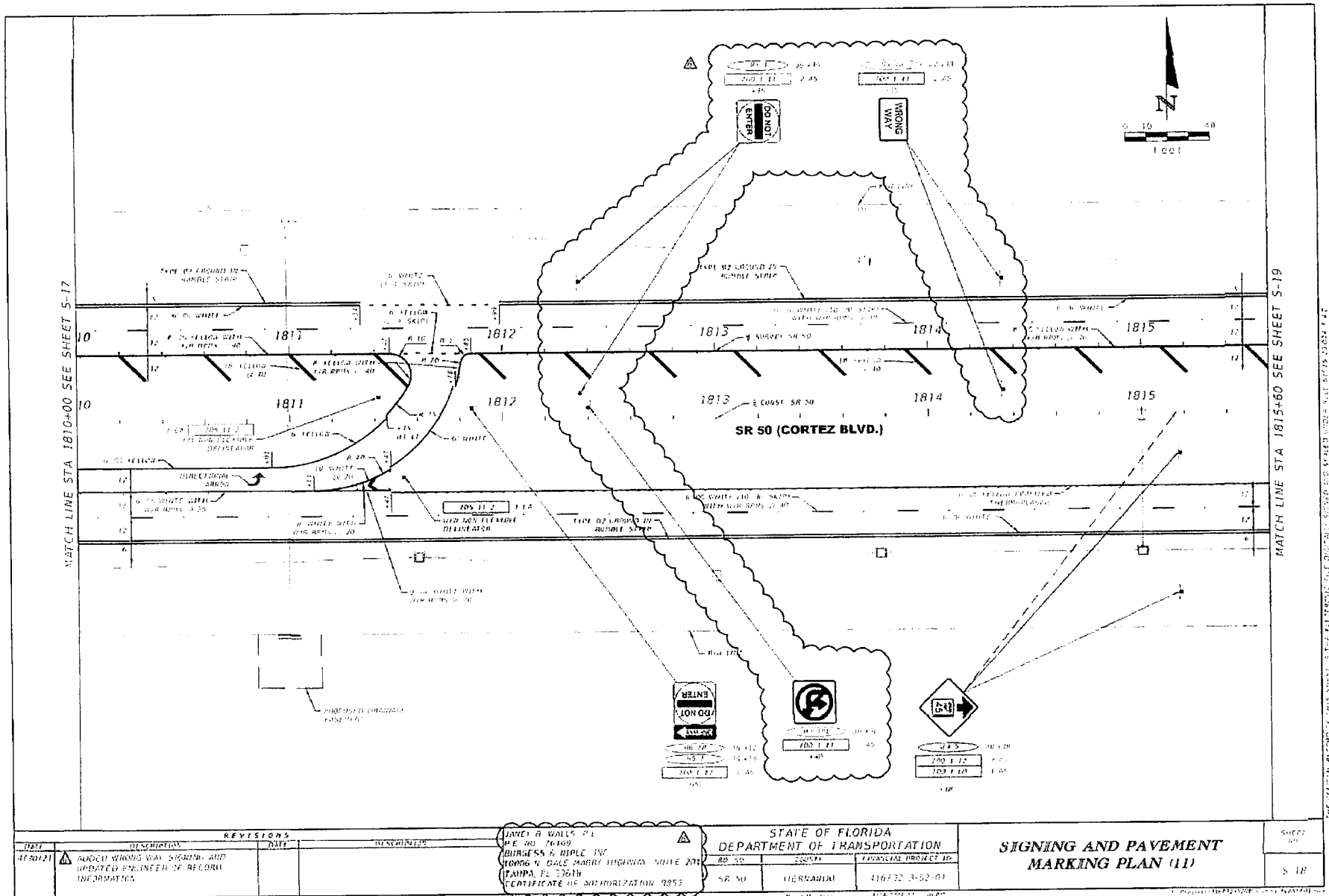


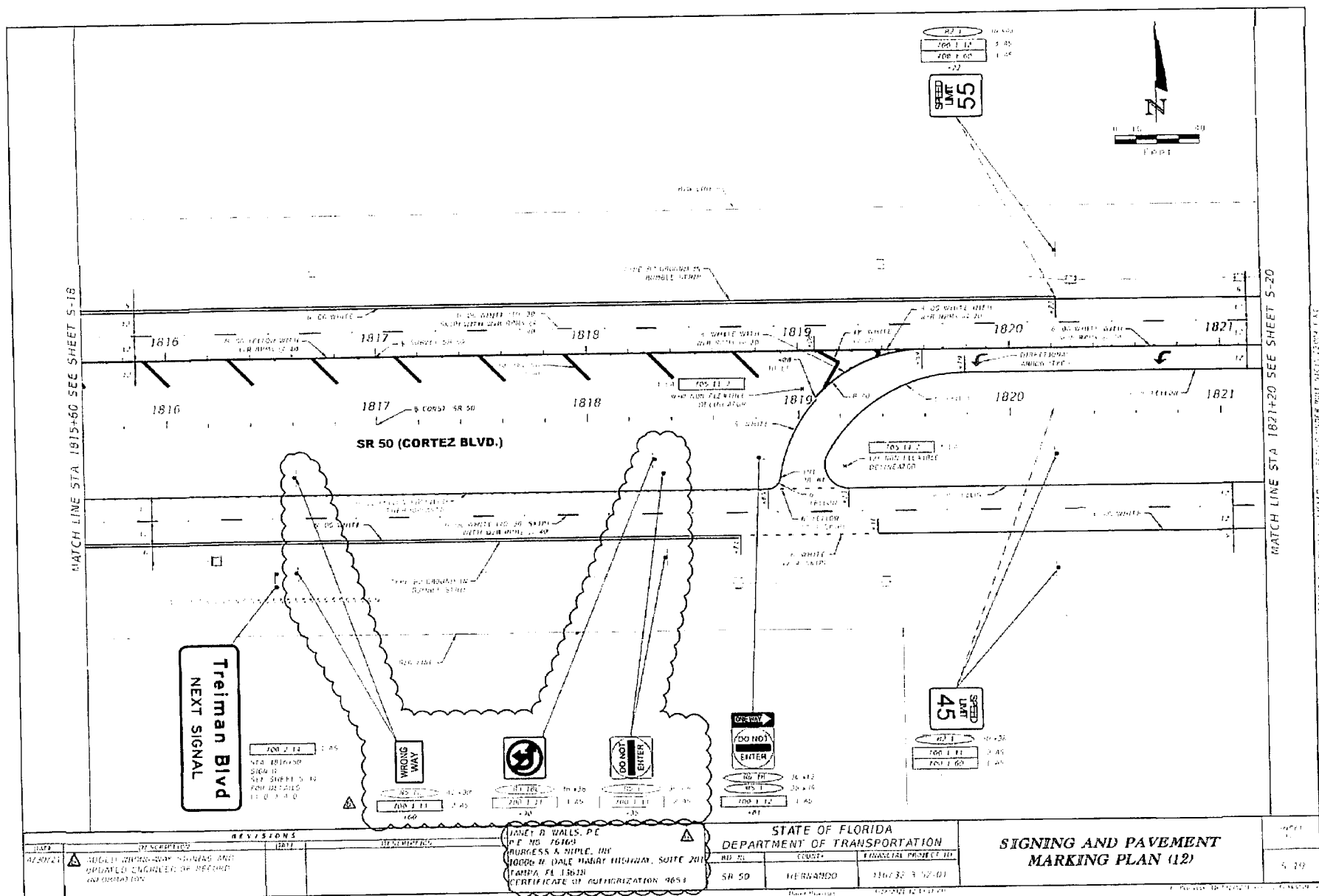
MATCH LINE STA 1787+50 SEE SHEET S-13

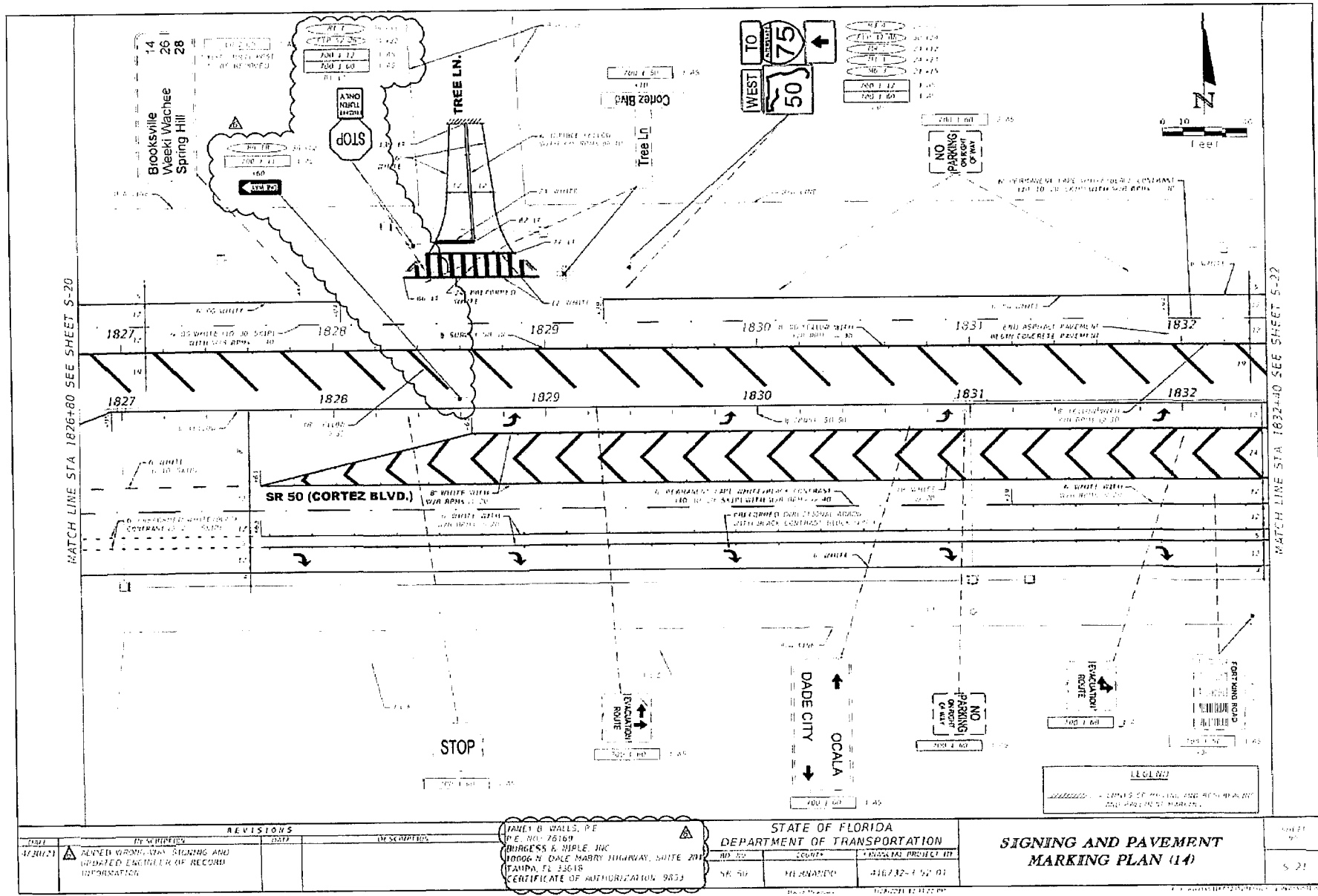
MATCH LINE STA 1793+20 SEE SHEET S-15

DATE: 11/11/01 BY: J. B. WILSON, P.E. CHECKED: J. B. WILSON, P.E. SCALE: 1" = 40'

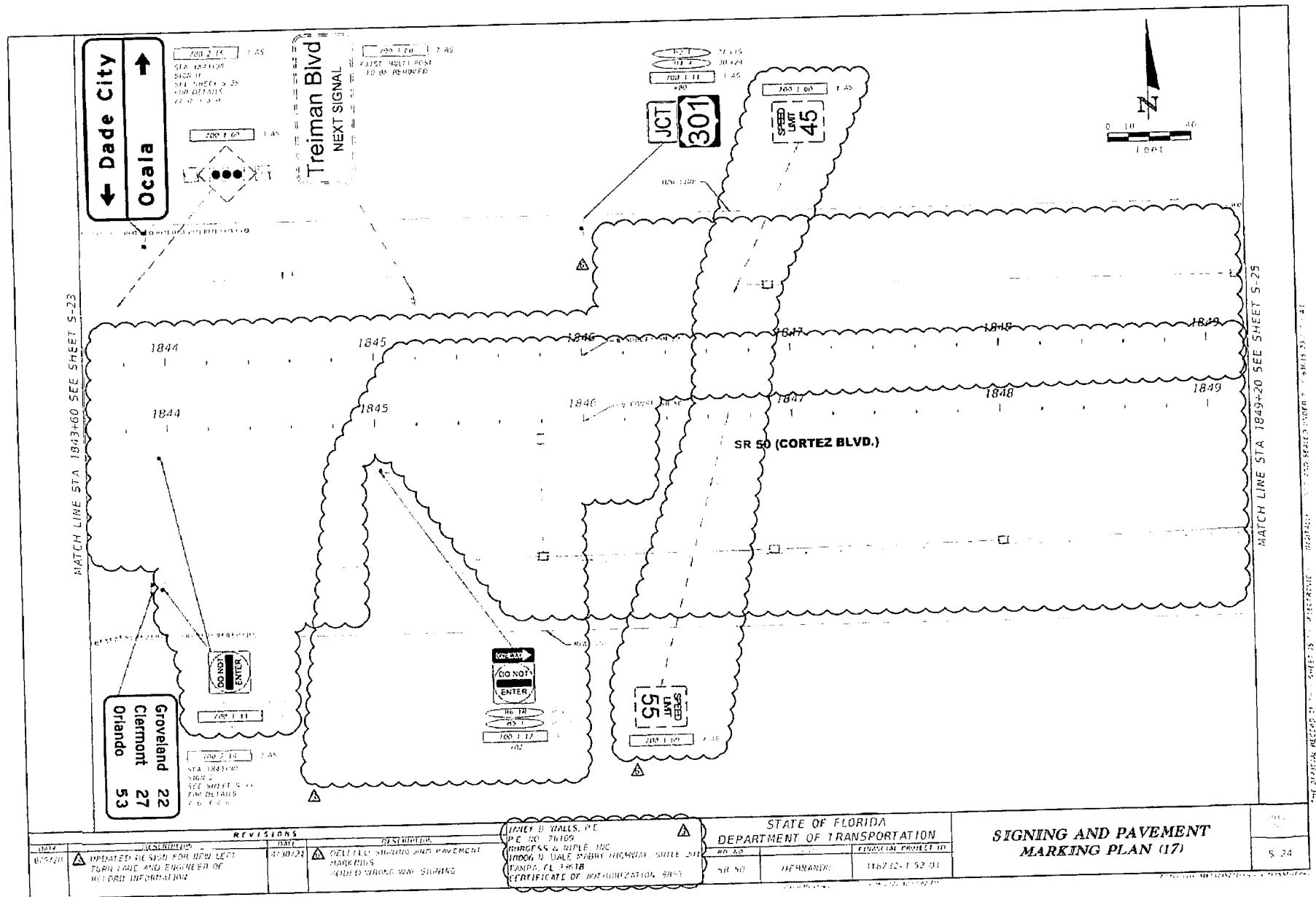








THESE PLANS AND SPECIFICATIONS ARE THE PROPERTY OF THE FLORIDA DEPARTMENT OF TRANSPORTATION. THEY ARE TO BE USED ONLY FOR THE PROJECT AND FOR THE PURPOSES SPECIFIED THEREIN.



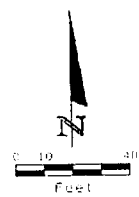
Treiman Blvd
NEXT SIGNAL

100' 2" 1.45

100' 1.65

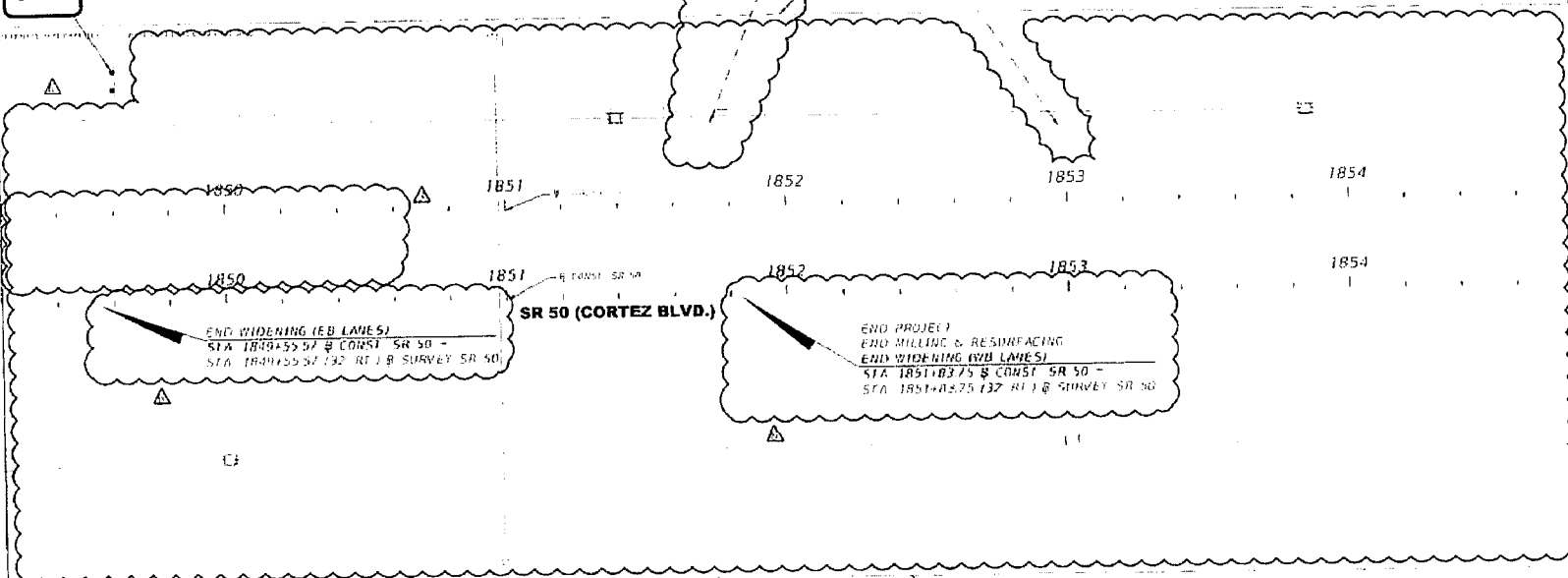
100' 1.65

Ridge Manor



MATCH LINE STA 1849+20 SEE SHEET S-24

MATCH LINE STA 1854+80 SEE SHEET S-26



END WIDENING (EB LANES)
STA 1850+55.57 @ CONST SR 50 -
STA 1849+55.57 @ SURVEY SR 50

SR 50 (CORTEZ BLVD.)

END PROJECT
END MILLING & RESURFACING
END WIDENING (WB LANES)
STA 1851+83.75 @ CONST SR 50 -
STA 1851+83.75 @ SURVEY SR 50

REVISIONS

NO.	DESCRIPTION	DATE
1	UPDATED DESIGN FOR NEW LEFT TURN LANE AND ENGINEER OF RECORD INFORMATION	4/30/21

DESCRIPTION

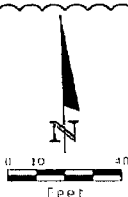
DELETED SIGNING AND PAVEMENT MARKINGS AND ADDED NOTE INDICATING NEW CD & WB END PROJECT LIMITS.

MARKET G. WALLS, P.E.
P.E. NO: 76169
BURGESS & RIPLE, INC.
10006 N DALE HARRY HIGHWAY, SUITE 201
PAMP, FL 33418
CERTIFICATE OF AUTHORIZATION 0823

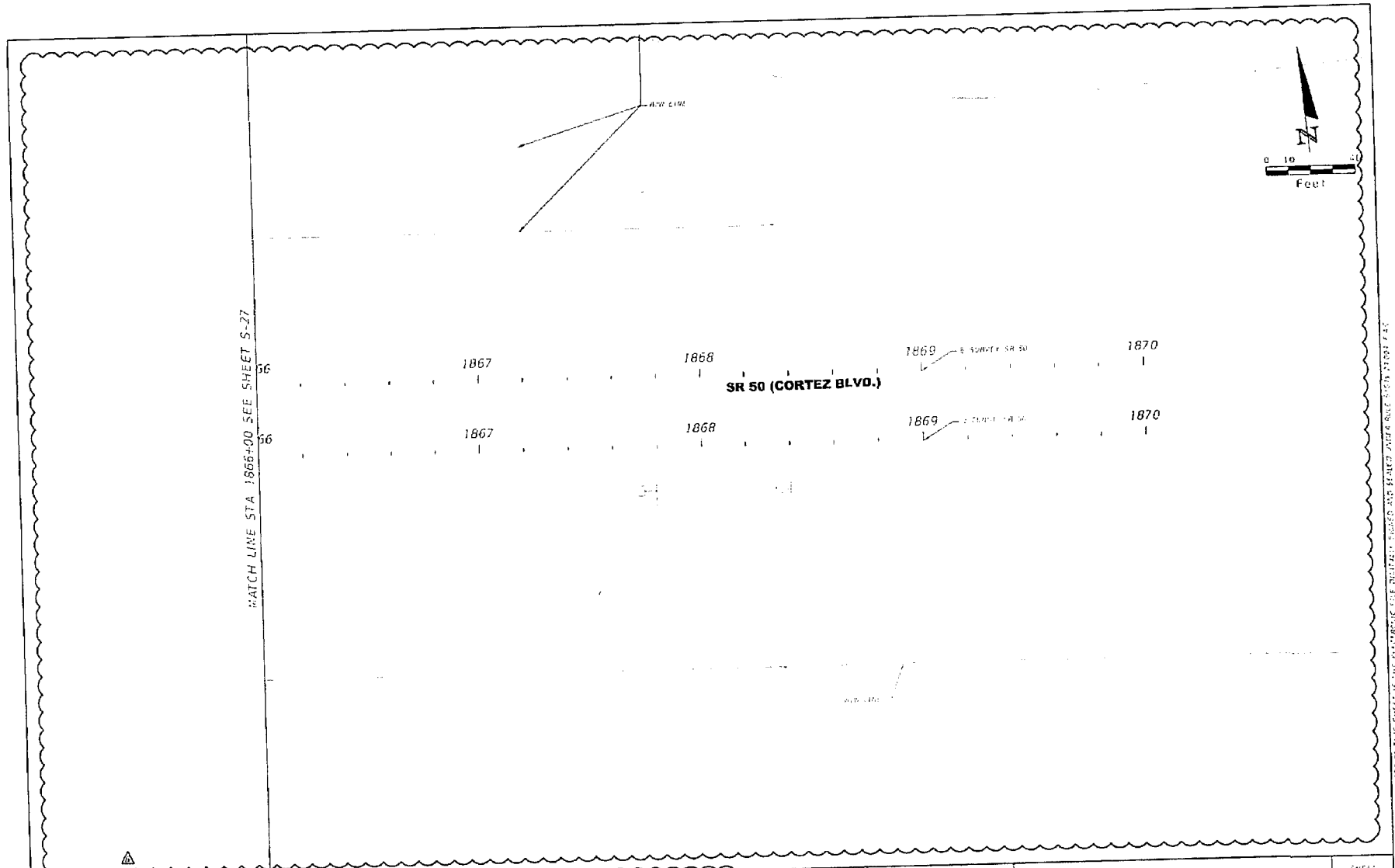
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

RD NO	COUNTY	PROJECT ID
SR 50	HERNANDO	216712-1 52-01

SIGNING AND PAVEMENT
MARKING PLAN (18)





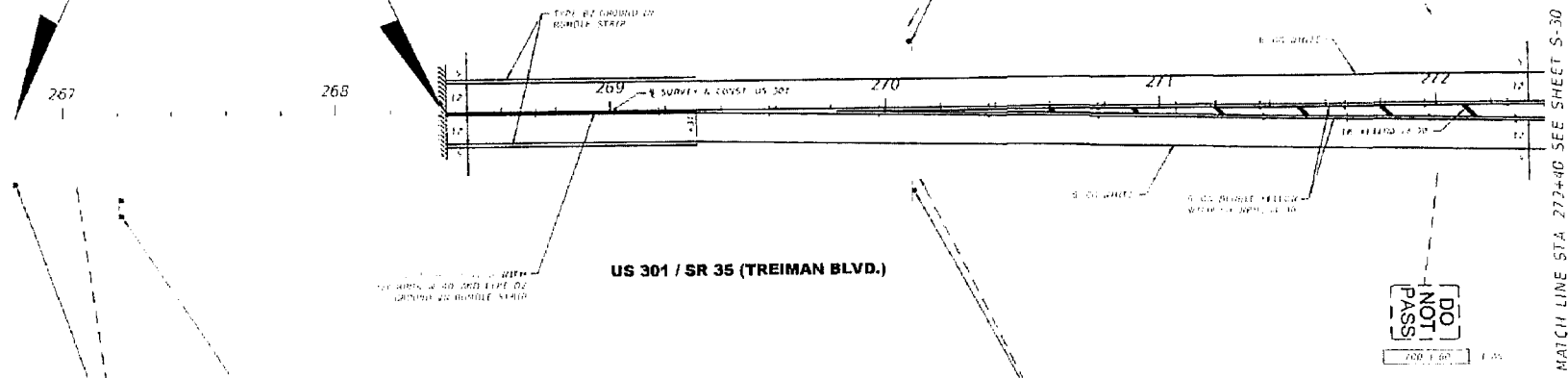
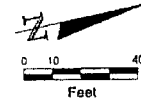


THE OFFICIAL RECORD OF THIS SHEET IS THE RECORD FOR THE PROJECT FOR THE DESIGN, CONSTRUCTION AND MAINTENANCE OF THE ROAD AND SHALL BE THE FINAL RECORD FOR THE PROJECT.

REVISIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">NO.</th> <th style="width: 40%;">DESCRIPTION</th> <th style="width: 10%;">DATE</th> <th style="width: 40%;">BY</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>DELETED SIGNING AND PAVEMENT MARKINGS THIS SHEET</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>UPDATED ENGINEER OF RECORD INFORMATION</td> <td></td> <td></td> </tr> </tbody> </table>		NO.	DESCRIPTION	DATE	BY	1	DELETED SIGNING AND PAVEMENT MARKINGS THIS SHEET			2	UPDATED ENGINEER OF RECORD INFORMATION			JANEY B. WALLS, P.E. P.E. NO. 26160 BURGESS & NIPLE, INC. 1000 N. DALE MARY HIGHWAY, SUITE 201 TAMPA, FL 33618 CERTIFICATE OF AUTHORIZATION 0854	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 20%;">SR NO.</th> <th style="width: 20%;">COUNTY</th> <th style="width: 60%;">FUNDING PROJECT ID</th> </tr> <tr> <td>SR 50</td> <td>HERRNAND</td> <td>416732-3-52-01</td> </tr> </table>	SR NO.	COUNTY	FUNDING PROJECT ID	SR 50	HERRNAND	416732-3-52-01	SIGNING AND PAVEMENT MARKING PLAN (21)	SHEET 28 S-28
NO.	DESCRIPTION	DATE	BY																				
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2	UPDATED ENGINEER OF RECORD INFORMATION																						
SR NO.	COUNTY	FUNDING PROJECT ID																					
SR 50	HERRNAND	416732-3-52-01																					

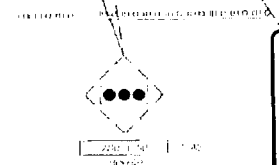
BEGIN WIDENING
 BEGIN MILLING AND RESURFACING
 BEGIN PAVEMENT MARKING
 STA 268+00.00 SURVEY & CONST US 301
 MATCH EXIST

BEGIN CONSTRUCTION
 BEGIN SIGNING
 STA 265+00.00 SURVEY
 & CONST US 301



US 301 / SR 35 (TREIMAN BLVD.)

MATCH LINE STA 272+40 SEE SHEET S-30



**Cortez Blvd
 NEXT SIGNAL**

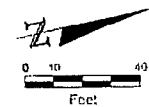
45
 SPEED
 LIMIT

LEGEND
 (Symbol) CURBS OF THIS AND ALL NEWSPAVING AND PAVEMENT MARKING

REVISIONS			DESCRIPTION	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SIGNING AND PAVEMENT MARKING PLAN (22)
DATE	REVISIONS	DATE		RD NO	COUNTY	FINANCIAL PROJECT ID	
			JAMES H. SMITH, P.E. P.L. NO. 10169 JCM CONSULTANT GROUP, INC. 10006 N. DALE MARY HIGHWAY, SUITE 202 TAMPA, FL 33618 CERTIFICATE OF AUTHORIZATION 8230	SR 30	HERNANDO	311-712-1-72-01	S-29

3
Trilacoochee
20
Zephyrhills
46
Tampa

200 2 14 1 AS
200 2 10 1 AS
STA 272+50
SHEET 5 46
SEE SHEET 5 46
FOR DETAILS
P. 10 4 2 1



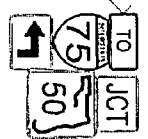
MATCH LINE STA 272+40 SEE SHEET S-29

US 301 / SR 35 (TREIMAN BLVD.)

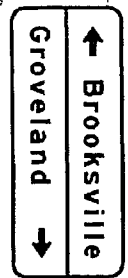
MATCH LINE STA 278+00 SEE SHEET S-31

Cortez Blvd
NEXT SIGNAL

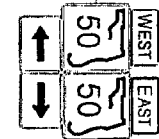
200 2 10 1 AS
200 2 10 1 AS
200 2 10 1 AS



200 2 10 1 AS
200 2 10 1 AS
200 2 10 1 AS
200 2 10 1 AS
200 2 10 1 AS
200 2 10 1 AS
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200 2 10 1 AS
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200 2 10 1 AS



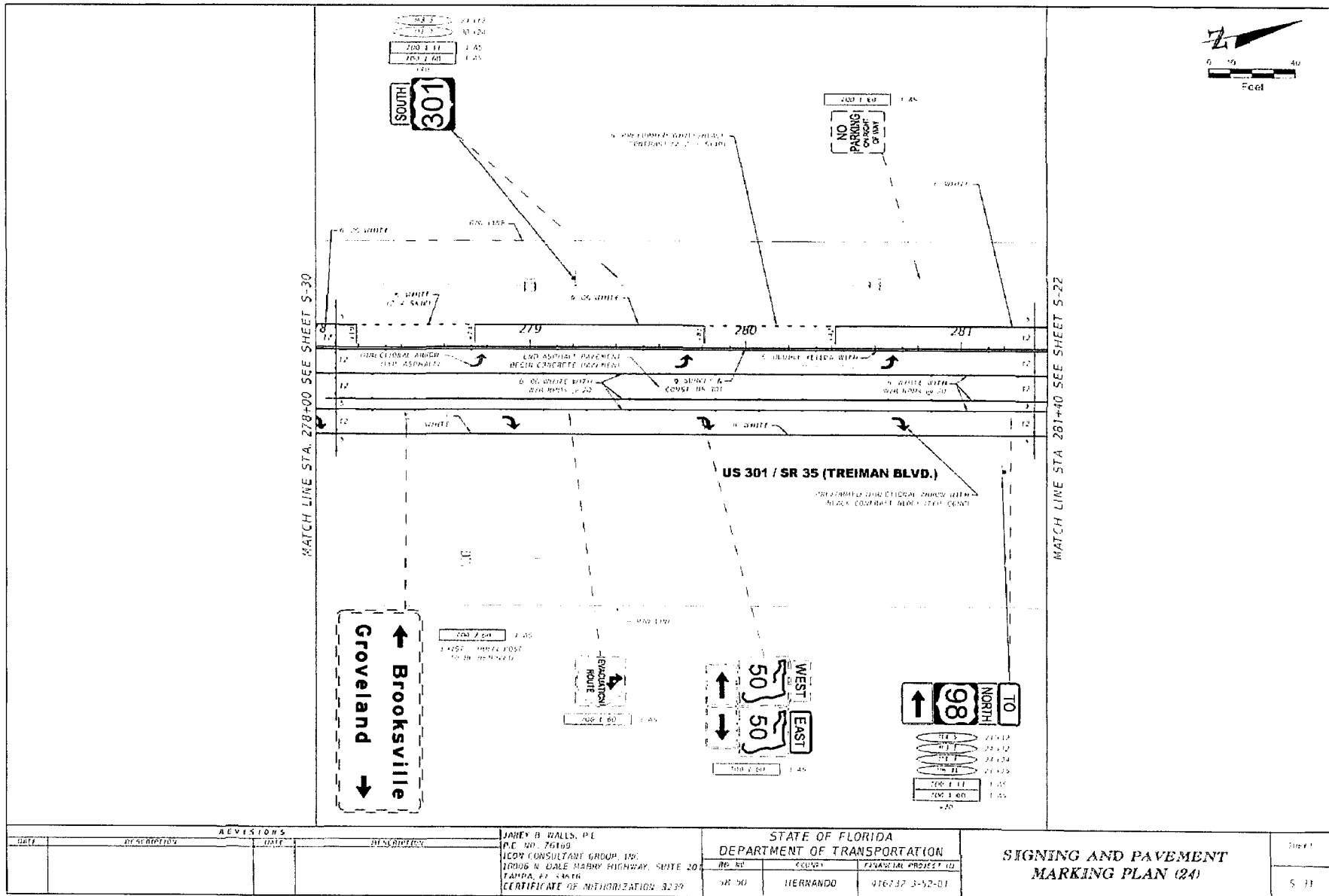
200 2 10 1 AS
200 2 10 1 AS
200 2 10 1 AS
200 2 10 1 AS
200 2 10 1 AS
200 2 10 1 AS
200 2 10 1 AS
200 2 10 1 AS
200 2 10 1 AS
200 2 10 1 AS

REVISIONS				STATE OF FLORIDA			SIGNING AND PAVEMENT MARKING PLAN (23)	SHEET S-30
DATE	BY	DESCRIPTION	APPROVED	RD NO	COUNTY	FINANCIAL PROJECT ID		
				SR 50	HERNANDO	416732-3 52 01		

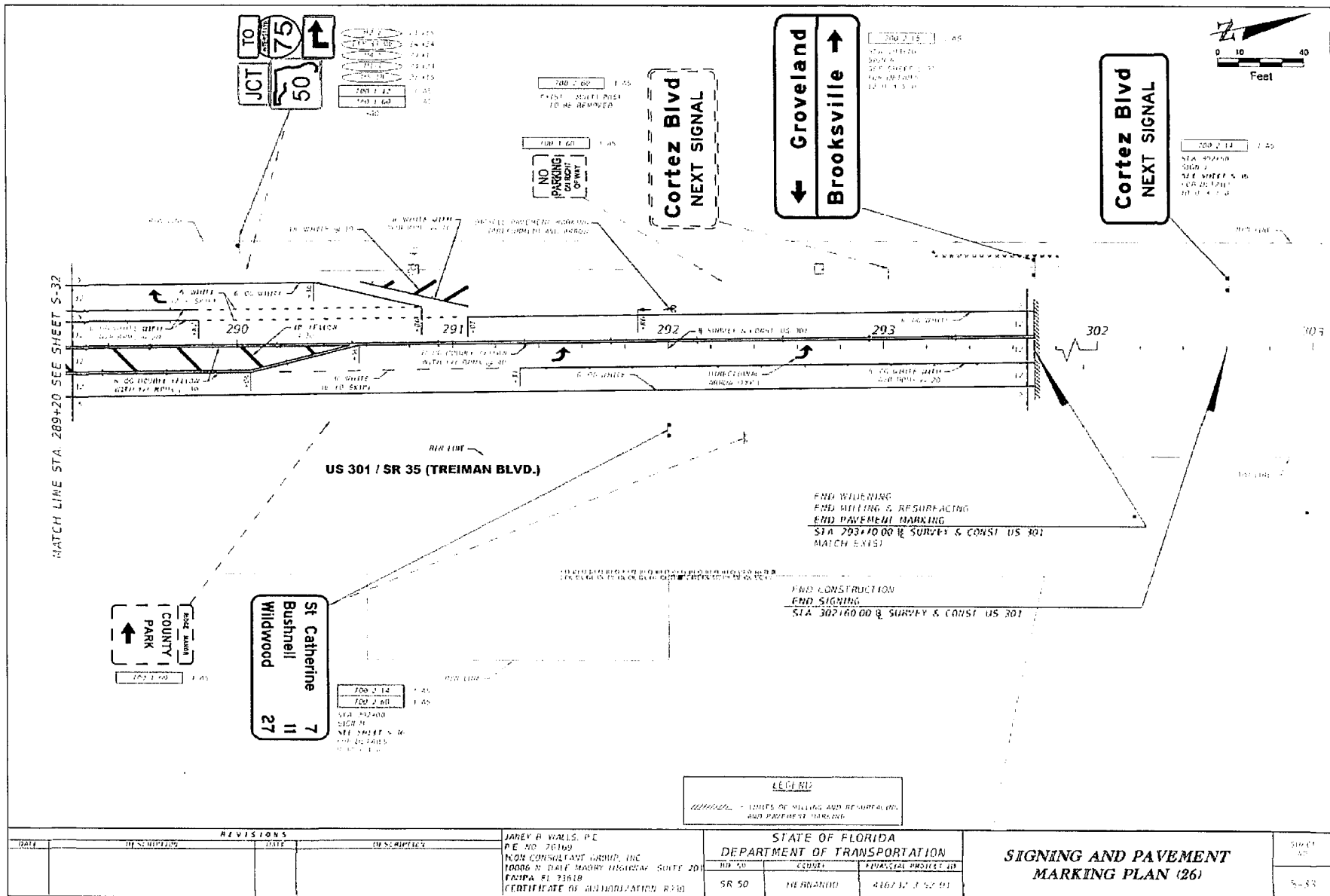
JAMES B. WATTS, P.E.
P.E. NO. 76169
ICCN CONSULTANT GROUP, INC.
10000 N. DALE HARRY HIGHWAY, SUITE 200
TAMPA, FL 33618
CERTIFICATE OF AUTHORIZATION DESK

Drawn By: 12/2009 6/11/2011

200 2 10 1 AS



THIS DRAWING WAS PREPARED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS, AND IS NOT TO BE USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN PERMISSION OF THE FLORIDA DEPARTMENT OF TRANSPORTATION.



ADDITIONAL BACKGROUND TRAFFIC



LINCKS & ASSOCIATES, INC.

TRANSPORTATION ANALYSIS

STATEWIDE LOGISTICS CENTER

Prepared For

CENTRAL FLORIDA DEVELOPMENT

Prepared By



LINCKS & ASSOCIATES, INC.

Engineers - Planners

Tampa, Florida

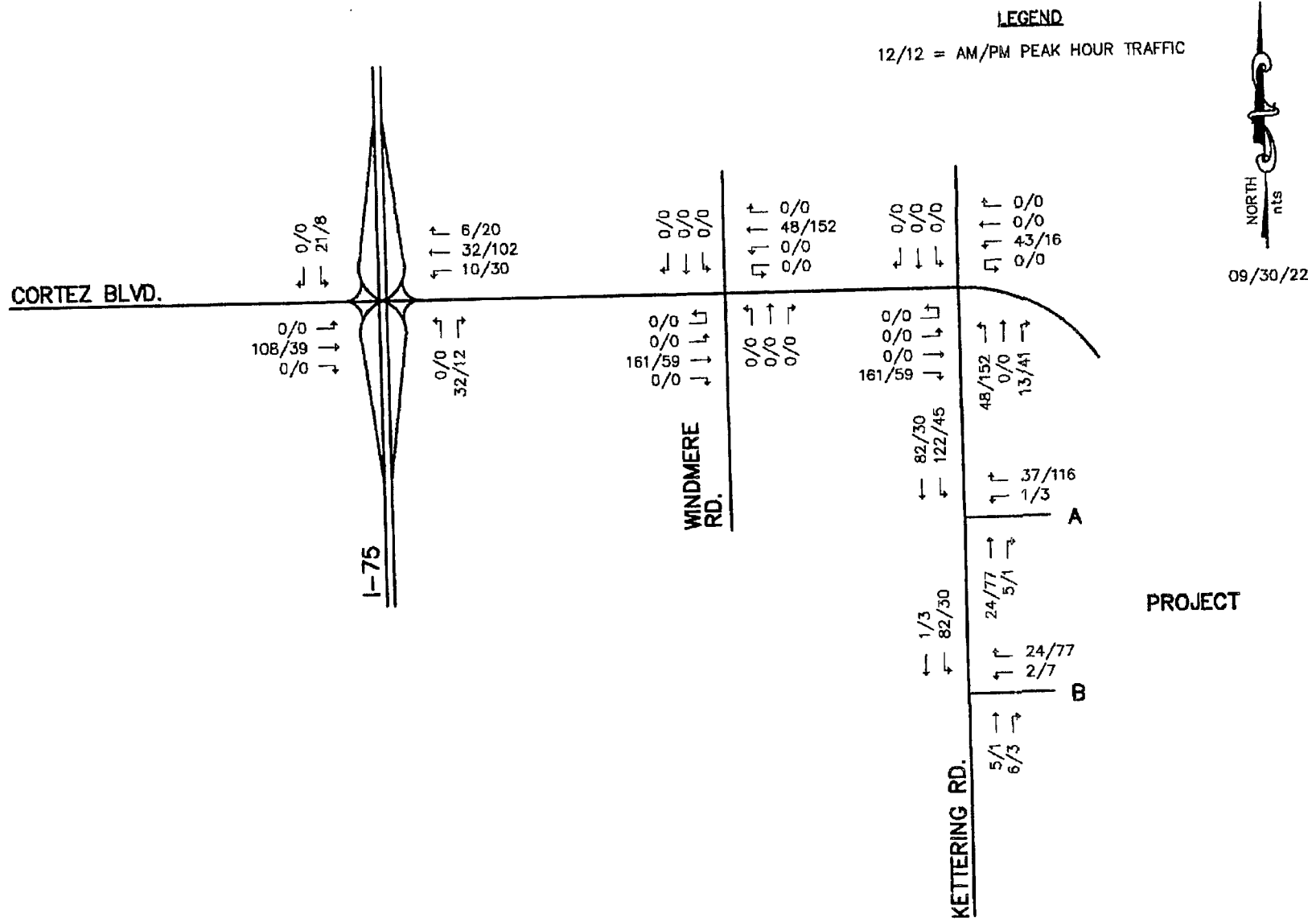


FIGURE 3
PROJECT TRAFFIC

TRANSPORTATION ANALYSIS

BENTON HILL ESTATES

Prepared For

MERITAGE HOMES

Prepared By



LINCKS & ASSOCIATES, INC.
Engineers - Planners
Tampa, Florida

TRANSPORTATION ANALYSIS

BENTON HILLS ESTATES

Prepared For
MERITAGE HOMES

Prepared By
LINCKS & ASSOCIATES, INC.
5023 West Laurel Street
Tampa, Florida 33607
813-289-0039
State of Florida Authorization No. EB0004638

January, 2022

Project No. 21130

Steven J. Henry, P.E.
P.E. No. 51555

Date



LINCKS & ASSOCIATES, INC.



TABLE 1
ESTIMATED PROJECT TRIP ENDS (1)

<u>Land Use</u>	<u>ITE LUC</u>	<u>Size</u>	<u>Daily Trip Ends</u>	<u>AM Peak Hour Trip Ends</u>			<u>PM Peak Hour Trip Ends</u>		
				<u>In</u>	<u>Out</u>	<u>Total</u>	<u>In</u>	<u>Out</u>	<u>Total</u>
Single Family	210	660 DU's	5,727	108	307	415	369	217	586

(1) Source: ITE Trip Generation Manual, 11th Edition, 2021.



FIGURE 3
PROJECT TRAFFIC

TRANSPORTATION ANALYSIS

KETTERING INDUSTRIAL

Prepared For

JDC PROPERTY GROUP, L.L.C

Prepared By



LINCKS & ASSOCIATES, INC.
Engineers - Planners
Tampa, Florida

TRANSPORTATION ANALYSIS

KETTERING INDUSTRIAL

Prepared For
JDC PROPERTY GROUP, L.L.C

Prepared By
LINCKS & ASSOCIATES, INC.
5023 West Laurel Street
Tampa, Florida 33607
813-289-0039
State of Florida Authorization No. EB0004638

January, 2022

Project No. 21241

Steven J. Henry, P.E.
P.E. No. 51555

Date



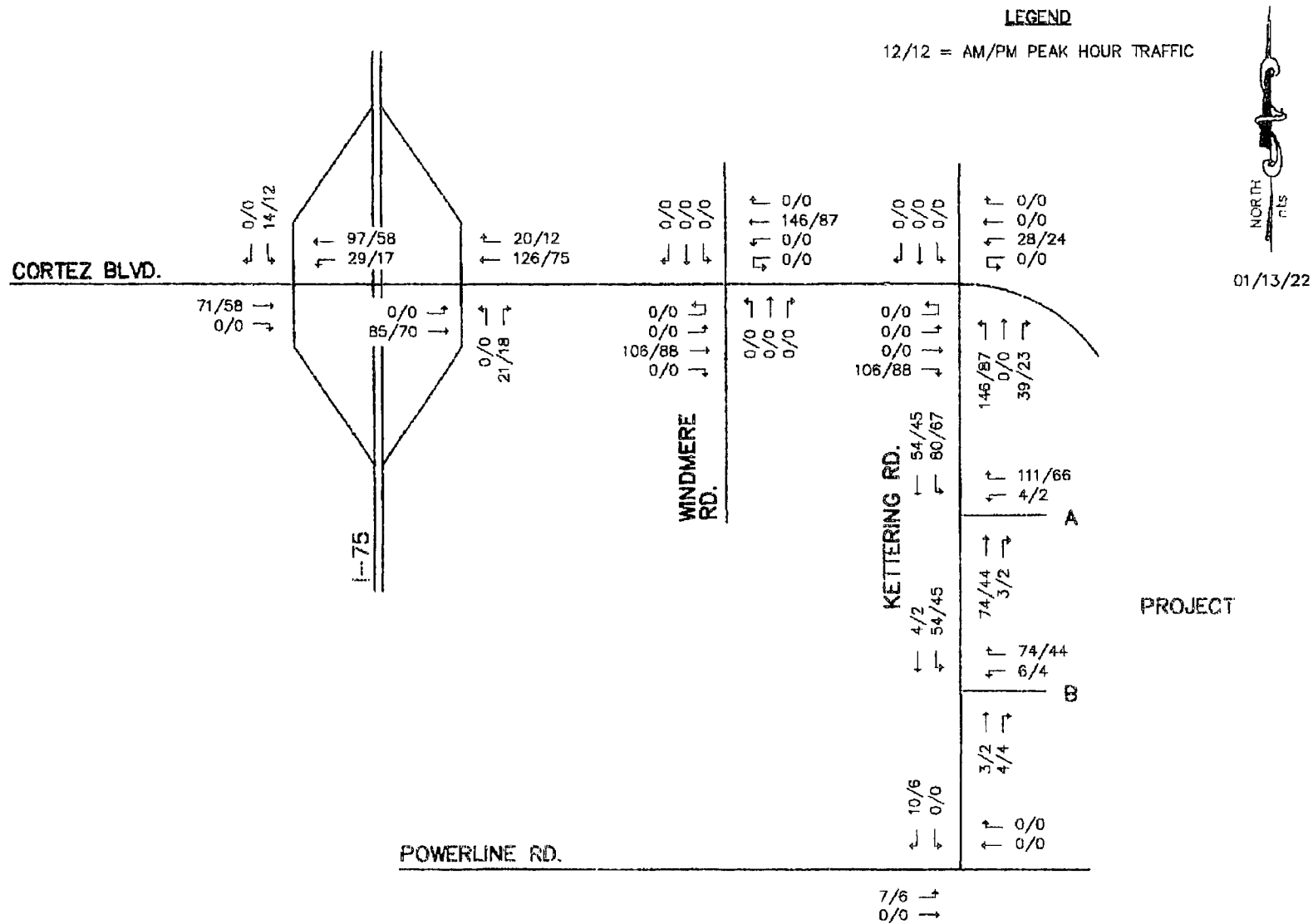
LINCKS & ASSOCIATES, INC.



TABLE 1
ESTIMATED STREET PROJECT TRIP ENDS (1)

<u>Land Use</u>	<u>Size</u>	<u>Daily Trip Ends</u>	<u>AM Peak Hour Trip Ends</u>			<u>PM Peak Hour Trip Ends</u>		
			<u>In</u>	<u>Out</u>	<u>Total</u>	<u>In</u>	<u>Out</u>	<u>Total</u>
Warehouse/ Distribution Facility	337,137 SF	3,052	141	195	336	118	116	234

(1) Source: Data provided by End User



SIGNAL TIMINGS



CONTROLLER OPERATION NOTES

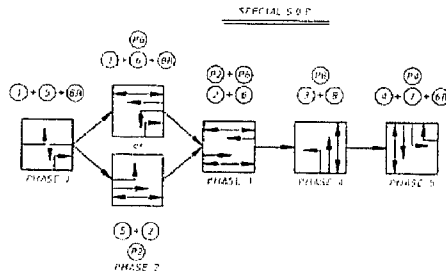
- MAJOR STREETS ARE SR 50 (CORTAZ BLVD) MOVEMENTS 2 AND 4
- MINOR STREETS ARE US 98 (MCKETHAN ROAD) MOVEMENT 8
OLANCHA ROAD, MOVEMENT 4
- PROGRAM SPECIAL SIGNAL OPERATING PLAN WITH THE FOLLOWING:
CONCURRENT/ACTUATED PEDESTRIANS FOR MOVEMENTS 2 (P2), 4 (P4), 6 (P6), AND 8 (P8)
WHEN THE SIGNAL IS IN FLASHING MODE, MOVEMENTS 2 AND 6 FLASH YELLOW. ALL OTHER MOVEMENTS FLASH RED.
WIRE EACH PHASE/MOVEMENT FROM THE SIGNAL DISPLAY TO THE CONTROLLER AS A SEPARATE PHASE/MOVEMENT. THIS INCLUDES LEFT TURN MOVEMENTS. EACH LEFT TURN MOVEMENT SHALL HAVE CONDUCTORS AVAILABLE FOR PROTECTED AND PERMISSIVE OPERATION.
- PROGRAM MOVEMENT 6R AS OVERLAP A TO COME UP WITH MOVEMENT 4 AND MATCH YELLOW AND ALL RED INTERVALS
- PROGRAM ALL DETECTION ZONES AS 6' X 30' AND LOCATED 2' AHEAD OF THE STOP BAR

INTERSECTION NOTES

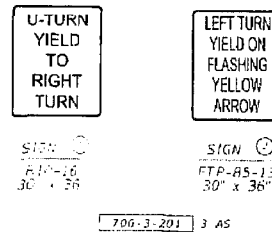
- THE POSTED SPEED LIMIT IS AS FOLLOWS:
SR 50 (CORTAZ BLVD) = 55 MPH
MCKETHAN ROAD = 35 MPH
OLANCHA ROAD = 35 MPH
- STREET LIGHTING LUMINAIRE BRACKET ARMS WILL BE ADDED TO ALL FOUR STEEL SIGNAL STRAIN POLES AT THIS INTERSECTION. SEE THE STRAIN POLE SCHEDULE FOR BRACKET ARM DETAILS. ALSO, SEE THE LIGHTING PLANS FOR THE LUMINAIRES TO BE ATTACHED AND THE ASSOCIATED DETAILS.

REMOVAL PAY ITEMS

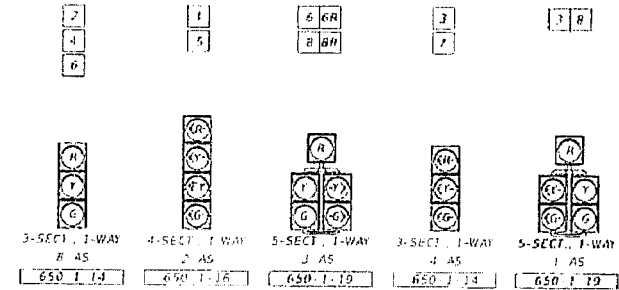
632-7-6	1 PI
642-2-80	2 EA
670-5-600	2 AS



REGULATORY SIGNS



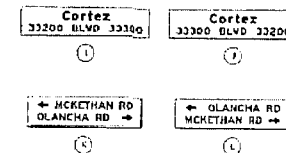
SIGNAL HEAD DETAILS



PEDESTRIAN HEAD DETAILS



INTERNALLY ILLUMINATED STREET NAME SIGNS



CONTROLLER TIMINGS

MOVEMENT NUMBER	1	2	3	4	5	6	7	8
MINIMUM GREEN	5	20	10	10	5	20	10	10
EXTENSION	2	5	5	5	5	5	5	5
MAXIMUM GREEN 1	20	30	30	30	30	30	30	30
MAXIMUM GREEN 2	40	40	40	40	40	40	40	40
YELLOW CLEARANCE	5	5	5	5	5	5	5	5
ALL RED	7	2	2	2	2	2	2	2
PEDESTRIAN WALK	7	7	7	7	7	7	7	7
RED CLEARANCE	24	37	37	37	37	37	37	37
RECALL								

TIMINGS ARE INITIAL AND MAY REQUIRE FIELD ADJUSTING AS DIRECTED BY THE ENGINEER. INSTALL CONCURRENT TIMING OF INITIAL AND EXTENSION INTERVALS.

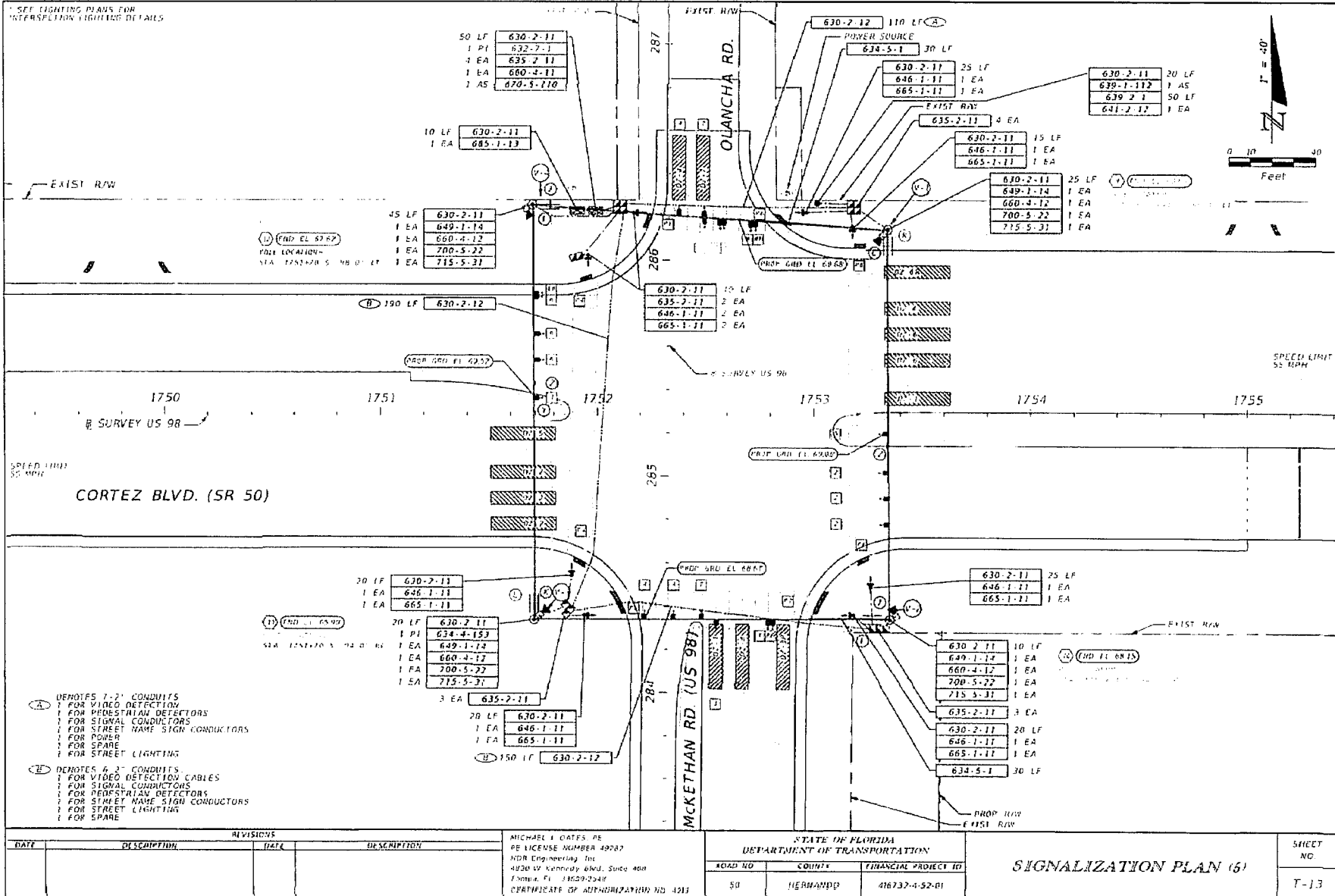
VIDEO VEHICLE DETECTION ASSIGNMENTS

VIDEO DETECTION	DETECTION ZONE	DETECT (SEC)
V-1	DZ-5	
V-2	DZ-2	
V-3	DZ-1	
V-4	DZ-6	
	DZ-6R	
	DZ-3	
	DZ-8	
	DZ-8R	

DATE	DESCRIPTION	REVISIONS	DATE	DESCRIPTION	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	SHEET NO
					ROAD NO. COUNTY FINANCIAL PROJECT ID	
					50 HERNANDO 416732-4-52-01	T-14

MICHAEL J. DATES, PE
PE LICENSE NUMBER 44282
HDR Engineering, Inc.
6930 W. Kennedy Blvd., Suite 400
Tampa, FL 33609-2348
CERTIFICATE OF AUTHORIZATION NO. 4213

SEE LIGHTING PLANS FOR
INTERSECTION LIGHTING DETAILS



THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G13-23.000, F.A.C.

Windmere

CONTROLLER OPERATION NOTES

- MAJOR STREET IS SR 50 (CORTAZ BOULEVARD), MOVEMENTS 2 AND 6.
- MINOR STREETS ARE:
BRONSON BOULEVARD, MOVEMENT 4
WINDMERE ROAD, MOVEMENT 8
- PROGRAM SIGNAL OPERATING PLAN NO. 1 WITH THE FOLLOWING:
CONCURRENT ACTUAL D FLDSTATIONS FOR MOVEMENTS 2 (P2), 4 (P4) AND 6 (P6)
WHEN THE SIGNAL IS IN FLASHING MODE, MOVEMENTS 2 AND 6 FLASH YELLOW. ALL OTHER SIGNALS FLASH RED.
WIRE EACH PHASE/MOVEMENT FROM THE SIGNAL DISPLAY TO THE CONTROLLER AS A SEPARATE PHASE/MOVEMENT. THIS INCLUDES LEFT TURN MOVEMENTS. EACH LEFT TURN MOVEMENT SHALL HAVE CONDUCTORS AVAILABLE FOR PROTECTED AND PERMISSIVE OPERATION.
- WIRE THE CABINET FOR SOP 10 BUT THE INITIAL OPERATION IS SOP 7

CONSTRUCTION NOTES

- ALL DETECTION ZONES ARE 6' X 30' AND PLACED 2' AHEAD OF THE STOP BAR

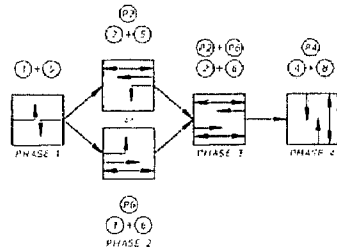
INTERSECTION NOTES

- THE POSTED SPEED LIMIT IS AS FOLLOWS:
SR 50 (CORTAZ BOULEVARD) = 45 MPH
WINDMERE ROAD = 30 MPH
BRONSON BOULEVARD = 30 MPH

RETURNS PER ITEM

632-7-6	1 P1
641-2-00	2 EA
646-1-60	2 EA
670-5-600	2 AS

SOP 7



CONTROLLER TIMINGS

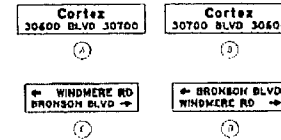
MOVEMENT NUMBER	1	2	3	4	5	6	7	8
MINIMUM GREEN	7	20		5	9	20		5
EXTENSION	5	4	5	4	5	4	5	4
MAXIMUM GREEN 1	30	50		30	15	50		30
MAXIMUM GREEN 2	40	140		50	70	140		50
YELLOW CLEARANCE	4	8	8	3	7	4	8	3
ALL RED	2	6	6	5	0	2	6	5
PEDESTRIAN WALK				7				7
RED CLEARANCE		24		50		24		50
RECALL								

TIMINGS ARE INITIAL AND MAY REQUIRE FIELD ADJUSTING AS DIRECTED BY THE ENGINEER. INSTALL CONCURRENT TIMING OF INITIAL AND EXTENSION INTERVALS

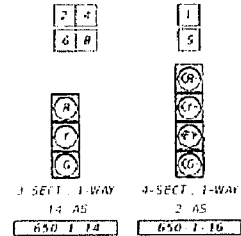
VIDEO VEHICLE DETECTION ASSIGNMENTS

VIDEO DETECTION	DETECTION ZONE	DELAY (SEC)
V-1	DZ-1	
	DZ-4	
	DZ-6R	
V-2	DZ-5	
	DZ-7	
V-3	DZ-8	
V-4	DZ-3	

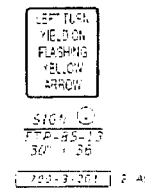
INTERVALLY ILLUMINATED STREET NAME SIGNS



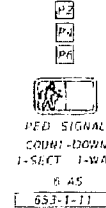
SIGNAL HEAD DETAILS



REGULATORY SIGNS



PEDESTRIAN HEAD DETAILS



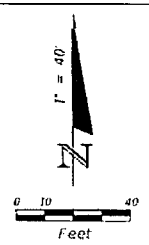
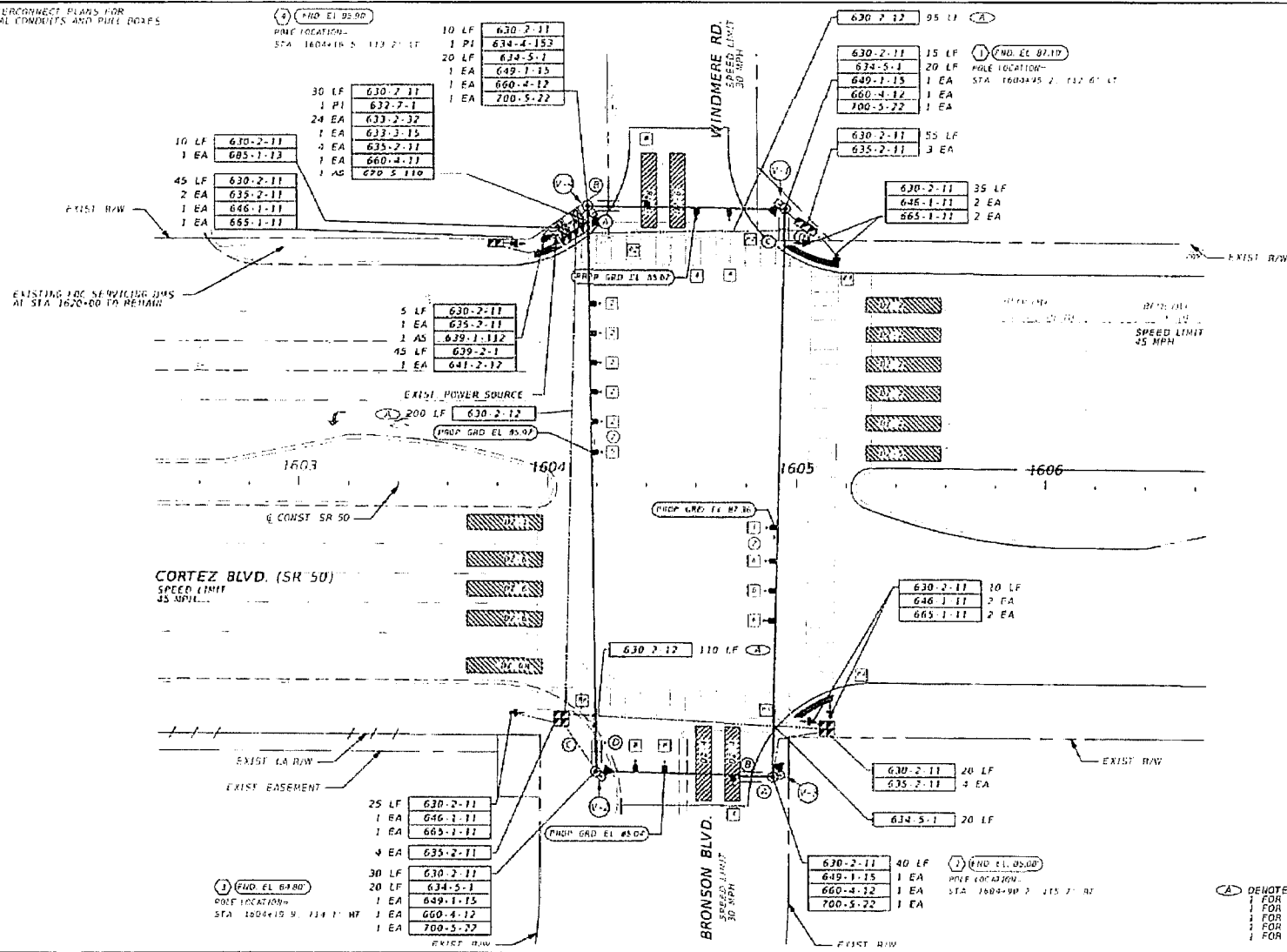
THIS OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE SIGS 22.004 F.A.C.

DATE	DESCRIPTION	DATE	DESCRIPTION	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	SHEET NO.
				ROAD NO. COUNTY FINANCIAL PROJECT ID	7-10
				50 HERNANDO 45737-4-52-01	

MICHAEL J. GATES, PE
PE LICENSE NUMBER 49282
MOR Engineering, Inc.
4830 W. Kennedy Blvd., Suite 400
Tampa, FL 33609-2948
CERTIFICATE OF AUTHORIZATION NO. 4713

SIGNALIZATION PLAN (2)

SEE INTERCONNECT PLANS FOR
ADDITIONAL CONDUITS AND PULL BOXES



REVISIONS		DESCRIPTION		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	FINANCIAL PROJECT ID	SHEET NO
DATE	DESCRIPTION	DATE	DESCRIPTION			
				50	HERNANDO	416732-4-52-01

MICHAEL J. OATES, PE
PE LICENSE NUMBER 49282
HOB Engineering, Inc.
4830 W Kennedy Blvd, Suite 400
Tampa, FL 33609-2548
CERTIFICATE OF AUTHORIZATION NO. 3313

SIGNALIZATION PLAN (1)

T-9

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61B.05, F.A.C.

Hernando County, FL
ECONOLITE

SR 50 - SR 50 @ I 75 - Econolite Type - Cobalt

Controller Timing Plan (MM) 2-1

Plan 1 - ""

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Min Green	7	15	0	10	7	15	0	10	0	0	0	0	0	0	0	0
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	7	0	7	0	0	7	7	0	0	0	0
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	32	0	24	0	29	0	22	0	0	11	12	0	0	0	0
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	5.0	0.0	5.0	5.0	5.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	25	35	0	25	25	35	0	25	0	0	0	0	0	0	0	0
Max2	25	35	0	25	25	35	0	25	0	0	0	0	0	0	0	0
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Clear	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ITTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Schedule (MM) 5-4**Schedule Number - 1**

Day Plan No.: 1

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
	X	X	X	X	X	X	X

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 2

Day Plan No.: 2

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
							X

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 3

Day Plan No.: 3

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
	X						

**STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION**

District Seven Traffic Signal Retiming Continuing Contract - Hernando County
FM: 433391-3-32-01

SR 50 (US 98) at Kettering Road/Croom Rital Road [3] Prepared By: **BMH** Date: **04/30/20**
East-West Roadway **SR 50 (US 98)** North-South Roadway **Kettering Road/Croom Rital Road**

PHASE TIMES							
PHASE	1	2		4	5	6	8
MOVEMENT	EBL	WB		NB	WBL	EB	SB
LEFT TURN	Prot	Prot		Perm	Prot	Prot	Perm
MIN GRN	5	30		8	5	30	8
GAP EXT	3.0	5.0		4.0	3.0	5.0	4.0
YEL CLR	5.5	5.5		5.5	5.5	5.5	5.5
RED CLR	2.0	2.0		2.6	2.0	2.0	2.6
MAX 1	10	50		25	20	50	25
MAX 2	10	70		20	20	70	20
MAX 3				45			
MAX GREEN EXT				5			
WALK							
PED CLR							

ACTION PLAN

COORDINATION PATTERN TABLES

All Week

Plan	Start	End	Action Plan
FREE	0:00	24:00	100

Cycle Length	Offset	Pattern	Alt Sequence
		FREE	

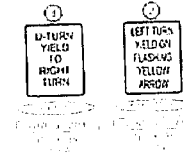
NOTES

1. Controller Type: Econolite ASC/2S-2100
2. Force-off Mode: Floating
3. Maximum Mode: Inhibit Max

DOI: 10.1002/for

The four diagrams illustrate the following types of chromosome mutations:

- Deletion:** A chromosome with segments labeled A, B, C, and D. A segment labeled 'B' is shown being removed from the chromosome.
- Duplication:** A chromosome with segments labeled A, B, C, and D. A segment labeled 'B' is shown being repeated or added to the chromosome.
- Inversion:** A chromosome with segments labeled A, B, C, and D. A segment labeled 'B' is shown being moved to a different position on the same chromosome, between segments A and C.
- Translocation:** Two chromosomes are shown. One has segments A, B, C, and D. The other has segments E, F, G, and H. A segment labeled 'B' is shown being moved from the first chromosome to the second chromosome, between segments F and G.



(A)	Cortez 34900 BLVD 35000	(B)	Treiman 5225 BLVD 5220
(C)	Cortez 35000 BLVD 34900	(D)	Treiman 5220 BLVD 5225

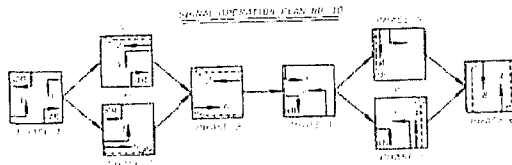
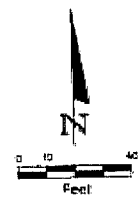
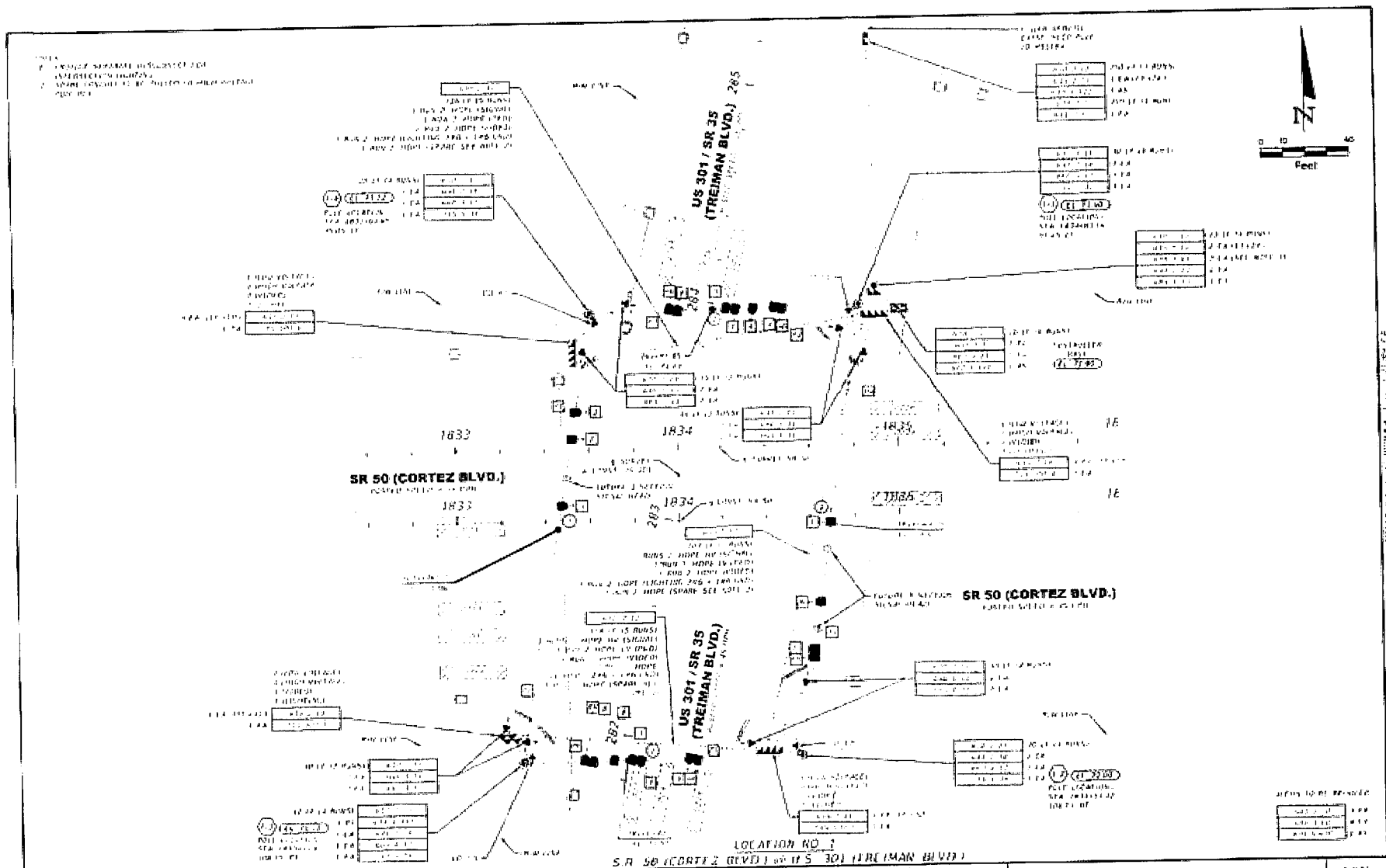


TABLE 1		TABLE 2	
Properties of the Polymers		Properties of the Polymers	
Sample	Properties	Sample	Properties
1	...	1	...
2	...	2	...
3	...	3	...
4	...	4	...
5	...	5	...
6	...	6	...
7	...	7	...
8	...	8	...
9	...	9	...
10	...	10	...
11	...	11	...
12	...	12	...
13	...	13	...
14	...	14	...
15	...	15	...
16	...	16	...
17	...	17	...
18	...	18	...
19	...	19	...
20	...	20	...
21	...	21	...
22	...	22	...
23	...	23	...
24	...	24	...
25	...	25	...
26	...	26	...
27	...	27	...
28	...	28	...
29	...	29	...
30	...	30	...
31	...	31	...
32	...	32	...
33	...	33	...
34	...	34	...
35	...	35	...
36	...	36	...
37	...	37	...
38	...	38	...
39	...	39	...
40	...	40	...
41	...	41	...
42	...	42	...
43	...	43	...
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45	...	45	...
46	...	46	...
47	...	47	...
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51	...	51	...
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64	...	64	...
65	...	65	...
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67	...	67	...
68	...	68	...
69	...	69	...
70	...	70	...
71	...	71	...
72	...	72	...
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85	...	85	...
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88	...	88	...
89	...	89	...
90	...	90	...
91	...	91	...
92	...	92	...
93	...	93	...
94	...	94	...
95	...	95	...
96	...	96	...
97	...	97	...
98	...	98	...
99	...	99	...
100	...	100	...

OUTSTANDING DEBITORS		DEBITORS		CREDITORS		CREDITORS	
DATE	AMOUNT	DATE	AMOUNT	DATE	AMOUNT	DATE	AMOUNT
1900	100.00	1900	100.00	1900	100.00	1900	100.00
1901	200.00	1901	200.00	1901	200.00	1901	200.00
1902	300.00	1902	300.00	1902	300.00	1902	300.00
1903	400.00	1903	400.00	1903	400.00	1903	400.00
1904	500.00	1904	500.00	1904	500.00	1904	500.00
1905	600.00	1905	600.00	1905	600.00	1905	600.00
1906	700.00	1906	700.00	1906	700.00	1906	700.00
1907	800.00	1907	800.00	1907	800.00	1907	800.00
1908	900.00	1908	900.00	1908	900.00	1908	900.00
1909	1000.00	1909	1000.00	1909	1000.00	1909	1000.00
1910	1100.00	1910	1100.00	1910	1100.00	1910	1100.00
1911	1200.00	1911	1200.00	1911	1200.00	1911	1200.00
1912	1300.00	1912	1300.00	1912	1300.00	1912	1300.00
1913	1400.00	1913	1400.00	1913	1400.00	1913	1400.00
1914	1500.00	1914	1500.00	1914	1500.00	1914	1500.00
1915	1600.00	1915	1600.00	1915	1600.00	1915	1600.00
1916	1700.00	1916	1700.00	1916	1700.00	1916	1700.00
1917	1800.00	1917	1800.00	1917	1800.00	1917	1800.00
1918	1900.00	1918	1900.00	1918	1900.00	1918	1900.00
1919	2000.00	1919	2000.00	1919	2000.00	1919	2000.00
1920	2100.00	1920	2100.00	1920	2100.00	1920	2100.00
1921	2200.00	1921	2200.00	1921	2200.00	1921	2200.00
1922	2300.00	1922	2300.00	1922	2300.00	1922	2300.00
1923	2400.00	1923	2400.00	1923	2400.00	1923	2400.00
1924	2500.00	1924	2500.00	1924	2500.00	1924	2500.00
1925	2600.00	1925	2600.00	1925	2600.00	1925	2600.00
1926	2700.00	1926	2700.00	1926	2700.00	1926	2700.00
1927	2800.00	1927	2800.00	1927	2800.00	1927	2800.00
1928	2900.00	1928	2900.00	1928	2900.00	1928	2900.00
1929	3000.00	1929	3000.00	1929	3000.00	1929	3000.00
1930	3100.00	1930	3100.00	1930	3100.00	1930	3100.00
1931	3200.00	1931	3200.00	1931	3200.00	1931	3200.00
1932	3300.00	1932	3300.00	1932	3300.00	1932	3300.00
1933	3400.00	1933	3400.00	1933	3400.00	1933	3400.00
1934	3500.00	1934	3500.00	1934	3500.00	1934	3500.00
1935	3600.00	1935	3600.00	1935	3600.00	1935	3600.00
1936	3700.00	1936	3700.00	1936	3700.00	1936	3700.00
1937	3800.00	1937	3800.00	1937	3800.00	1937	3800.00
1938	3900.00	1938	3900.00	1938	3900.00	1938	3900.00
1939	4000.00	1939	4000.00	1939	4000.00	1939	4000.00
1940	4100.00	1940	4100.00	1940	4100.00	1940	4100.00

[illegible][illegible]

V8301



REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SIGNALIZATION PLAN (1)	SHEET NO.
NO.	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	PROJECT NO.		
1				SR 50	HERNANDO	416/72-3-52-01		15

Hernando County, FL
ECONOLITE

1-Cortez Blvd @ Jasmine St - 192.168.150.83 - Econolite Type - ASC/3

Time Base Day Plan/Schedule
 Day Plan (MM) 5-3

Day Plan #1

Event	Action Plan	Start Time
1	2	00:00
2	2	07:00
3	2	07:45
4	2	08:00
5	2	15:00
6	2	15:45
7	2	21:30

Day Plan #2

Event	Action Plan	Start Time
1	99	00:00
2	2	09:00
3	99	18:00

Schedule (MM) 5-4**Schedule Number - 1**

Day Plan No.: 1

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
		X	X	X	X	X	

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 2

Day Plan No.: 2

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
	X						X

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Coordinator Pattern # 2

Split Pattern	2	TS2 (Pat-Off)	0-2	Splits In	Seconds
Cycle	90	Std (COS)	73	Offsets In	Seconds
Offset Value	55s	Dwell/Add Time	0		
Actuated Coord No		Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase	No	Action Plan	2		
Reservice					
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Splits (Split Pat 2)	10	25	0	30	35	25	0	30	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4	Misc. Data					
Ring Split Ext	0	0	0	0	Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Ring Displacement	-	0	0	0	Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0
Split Sum	65s	90s	0s	0s						

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X			X											
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase													X	X	X	X
Special Function Outputs																

Coordinator Pattern # 3

Split Pattern	3	TS2 (Pat-Off)	0-3	Splits In	Seconds
Cycle	60	Std (COS)	10	Offsets In	Seconds
Offset Value	45s	Dwell/Add Time	0		
Actuated Coord No		Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase	No	Action Plan	3		
Reservice					
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Splits (Split Pat 3)	15	20	0	20	20	20	0	20	0	0	0	0	0	0	0	0

Hernando County, FL
 ECONOLITE

1-Cortez Blvd @ Jasmine St - 192.168.150.83 - Econolite Type - ASC/3

Coordination Split Pattern

Split Pattern Data (MM) 3-3

Split Pattern # 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Split (seconds)	15	25	0	30	35	25	0	30	0	0	0	0	0	0	0	0
Coord Phase		X			X											
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase													X	X	X	X

Ring	1	2	3	4
Split Sum	70s	90s	0s	0s

Split Pattern # 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Split (seconds)	10	25	0	30	35	25	0	30	0	0	0	0	0	0	0	0
Coord Phase		X			X											
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase													X	X	X	X

Ring	1	2	3	4
Split Sum	65s	90s	0s	0s

Split Pattern # 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Split (seconds)	15	20	0	20	20	20	0	20	0	0	0	0	0	0	0	0
Coord Phase		X			X											
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase													X	X	X	X



1-Cortez Blvd @ Jasmine St - 192.168.150.83 - Econolite Type - ASC/3

Preempt Plan

Preempt Plan (MM) 4-1

No Enabled Preempts

Plan 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction																
Min Green	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	16	0	16	0	16	0	16	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Max2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



3 - Cortez Blvd @ Main St - 192.168.150.79 - Econolite Type - ASC/3

Configuration Controller Sequence

Phase Ring Sequence and Assignment (MM) 1-1-1

Hardware Alternate Sequence Enable: No

Phase Ring Sequence.....(Note: Sequences identical to the prior one are not printed)

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
	B		B		B		B									

Sequence 1

Ring 1	1	2	3	4	9	10	.	.	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	.	.	.	.	.	.	.	.	.	.

Phases In Use/Exclusive Ped (MM) 1-2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phases In Use	X	X		X	X	X		X								
Exclusive Ped																

Phase Compatibility

(MM) 1-1-2

Phase	
n/a	Barrier Mode

Phase and Overlap Descriptions

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Description																

Administration (MM) 1-7-1

Enable Controller/Cabinet No
 Interlock CRC
 CRC (16 bit) 2471
 Enable Automatic Backup No
 to Datakey

Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction																
Min Green	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	16	0	16	0	16	0	16	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Max2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Coordinator Pattern # 2

Split Pattern	2	TS2 (Pat-Off)	0-2	Splits In	Seconds
Cycle	90	Std (COS)	73	Offsets In	Seconds
Offset Value	62s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase	No	Action Plan	2		
Reservice					
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Splits (Split Pat 2)	15	45	0	20	15	45	0	20	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	80s	80s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase													X	X	X	X
Special Function Outputs																

Coordinator Pattern # 3

Split Pattern	3	TS2 (Pat-Off)	0-3	Splits In	Seconds
Cycle	60	Std (COS)	10	Offsets In	Seconds
Offset Value	50s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase	No	Action Plan	3		
Reservice					
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Splits (Split Pat 3)	15	25	0	20	15	25	0	20	0	0	0	0	0	0	0	0

Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	60s	60s	0s	0s

Misc. Data

Veh Perm 1 0 Veh Perm 2 0 Veh Perm 2 Disp 0
 Split Demand Pat 1 0 Split Demand Pat 2 0 Crossing Arterial Pat 0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase													X	X	X	X
Special Function Outputs																



3 - Cortez Blvd @ Main St - 192.168.150.79 - Econolite Type - ASC/3

Time Base Day Plan/Schedule
Day Plan (MM) 5-3

Day Plan #1

Event	Action Plan	Start Time
1	99	00:00
2	3	07:00
3	2	07:45
4	3	09:00
5	2	15:00
6	3	15:45
7	99	21:30

Day Plan #2

Event	Action Plan	Start Time
1	99	06:00
2	2	09:00
3	99	18:00

Schedule (MM) 5-4**Schedule Number - 1**

Day Plan No.: 1

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
		X	X	X	X	X	

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 2

Day Plan No.: 1

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
	X						X

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

INTERSECTION ANALYSIS



LINCKS & ASSOCIATES, INC.

PEAK SEASON WITH EXISTING/BUDGETED IMPROVEMENTS



Lanes, Volumes, Timings

11: Cortez Blvd & East Jefferson St & Jasmine Dr

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	10	354	10	679	404	23	6	140	720	28	104	3
Future Volume (vph)	10	354	10	679	404	23	6	140	720	28	104	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		300	400		400	400		0	300		0
Storage Lanes	1		1	2		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1770	1863	1583	1770	1855	0
Flt Permitted	0.950			0.950			0.625			0.511		
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1164	1863	1583	952	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			61			750		2	
Link Speed (mph)		45			45			45			30	
Link Distance (ft)		2005			1665			2021			1421	
Travel Time (s)		30.4			25.2			30.6			32.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	10	369	10	707	421	24	6	146	750	29	108	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	369	10	707	421	24	6	146	750	29	111	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Free	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases			6			2	4		Free	8		

Lanes, Volumes, Timings

11: Cortez Blvd & East Jefferson St & Jasmine Dr

10/27/2022

	↖	→	↗	↖	←	↗	↖	↗	↖	↗	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6	6	5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5		22.5	22.5	
Total Split (s)	10.0	25.0	25.0	35.0	50.0	50.0	30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	27.8%	27.8%	38.9%	55.6%	55.6%	33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	6.0	21.0	21.0	31.0	46.0	46.0	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effect Green (s)	6.1	41.5	41.5	24.1	67.4	67.4	12.4	12.4	90.0	12.4	12.4	
Actuated g/C Ratio	0.07	0.46	0.46	0.27	0.75	0.75	0.14	0.14	1.00	0.14	0.14	
v/c Ratio	0.08	0.23	0.01	0.77	0.16	0.02	0.04	0.57	0.47	0.22	0.43	
Control Delay	40.4	16.8	0.0	36.2	4.4	0.2	31.7	44.4	1.0	37.0	39.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	40.4	16.8	0.0	36.2	4.4	0.2	31.7	44.4	1.0	37.0	39.2	
LOS	D	B	A	D	A	A	C	D	A	D	D	
Approach Delay		17.0			23.8			8.2			38.7	
Approach LOS		B			C			A			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 55 (61%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 18.1

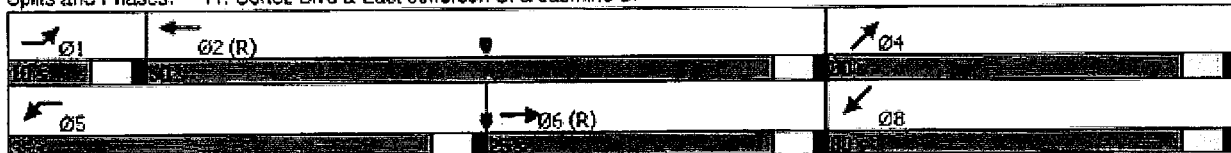
Intersection Capacity Utilization 54.0%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service A

Splits and Phases: 11: Cortez Blvd & East Jefferson St & Jasmine Dr



HCS7 Two-Way Stop-Control Report

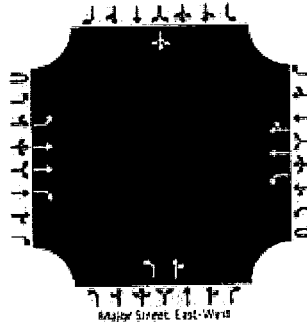
General Information

Analyst	
Agency/Co.	
Date Performed	9/23/2022
Analysis Year	2022
Time Analyzed	PM Peak
Intersection Orientation	East-West
Project Description	Peakseason Traffic and Existing/Budgeted Geometry

Site Information

Intersection	
Jurisdiction	
East/West Street	Cortez Blvd
North/South Street	Lockhart Rd
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	TU	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	1	0	1	2	0		1	1	0		0	1	0
Configuration		L	T	R		L	T	TR		L		TR			LTR	
Volume (veh/h)	1	0	636	20	3	42	783	0		61	0	43		0	0	0
Percent Heavy Vehicles (%)	3	3			3	3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No															
Median Type Storage					Left + Thru											

Critical and Follow-up Headways

Base Critical Headway (sec)	6.4	4.1			6.4	4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)	6.46	4.16			6.46	4.16				7.56	6.56	6.96		7.56	6.56	6.96
Base Follow-Up Headway (sec)	2.5	2.2			2.5	2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)	2.53	2.23			2.53	2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1				47				64		45			0	
Capacity, c (veh/h)		433				855				268		662				
v/c Ratio		0.00				0.05				0.24		0.07				
95% Queue Length, Q ₉₅ (veh)		0.0				0.2				0.9		0.2				
Control Delay (s/veh)		13.3				9.5				22.6		10.8				
Level of Service (LOS)		B				A				C		B				
Approach Delay (s/veh)	0.0				0.5				17.7							
Approach LOS									C							

Lanes, Volumes, Timings
2: I-75 NB/I-75 SB & Cortez Blvd

12/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	489	92	154	497	121	116	0	319	108	0	291
Future Volume (vph)	151	489	92	154	497	121	116	0	319	108	0	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	435		0	620		0	0		545	0		650
Storage Lanes	2		1	1		1	3		2	3		2
Taper Length (ft)	50			100			25			25		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.94	1.00	0.88	0.94	1.00	0.88
Fr			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	4990	0	2787	4990	0	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	4990	0	2787	4990	0	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			295			295			326			297
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1000			840			750			850	
Travel Time (s)		15.2			12.7			17.0			19.3	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	154	499	94	157	507	123	118	0	326	110	0	297
Shared Lane Traffic (%)												
Lane Group Flow (vph)	154	499	94	157	507	123	118	0	326	110	0	297
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			36			36	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1		1	1		1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left		Right	Left		Right
Leading Detector (ft)	20	100	20	20	100	20	20		20	20		20
Trailing Detector (ft)	0	0	0	0	0	0	0		0	0		0
Detector 1 Position(ft)	0	0	0	0	0	0	0		0	0		0
Detector 1 Size(ft)	20	6	20	20	6	20	20		20	20		20
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3			7		
Permitted Phases			2			6			8			4

Lanes, Volumes, Timings
2: I-75 NB/I-75 SB & Cortez Blvd

12/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	6	3		8	7		4
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	10.0		5.0	10.0		10.0
Minimum Split (s)	17.9	28.9	28.9	17.9	28.9	28.9	20.9		25.0	20.9		20.9
Total Split (s)	25.0	35.0	35.0	25.0	35.0	35.0	25.0		25.0	25.0		25.0
Total Split (%)	22.7%	31.8%	31.8%	22.7%	31.8%	31.8%	22.7%		22.7%	22.7%		22.7%
Maximum Green (s)	14.1	24.1	24.1	14.1	24.1	24.1	14.1		14.1	14.1		14.1
Yellow Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9		4.9	4.9		4.9
All-Red Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)	10.9	10.9	10.9	10.9	10.9	10.9	10.9		10.9	10.9		10.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead		Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0
Recall Mode	None	Min	Min	None	Min	Min	None		None	None		None
Act Effct Green (s)	9.4	16.1	16.1	9.5	16.2	16.2	10.0		10.1	10.0		10.1
Actuated g/C Ratio	0.11	0.18	0.18	0.11	0.18	0.18	0.11		0.11	0.11		0.11
v/c Ratio	0.43	0.55	0.18	0.43	0.55	0.23	0.21		0.54	0.20		0.51
Control Delay	41.5	36.0	0.7	41.5	36.0	1.0	38.1		8.3	38.0		8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Total Delay	41.5	36.0	0.7	41.5	36.0	1.0	38.1		8.3	38.0		8.3
LOS	D	D	A	D	D	A	D		A	D		A
Approach Delay		32.7			31.6			16.2			16.3	
Approach LOS		C			C			B			B	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 89.4
 Natural Cycle: 95
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 26.5
 Intersection Capacity Utilization 48.7%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 2: I-75 NB/I-75 SB & Cortez Blvd

 Ø1	 Ø2	 Ø3	Ø4
 Ø5	 Ø6	 Ø7	Ø8

Lanes, Volumes, Timings

3: Bronson Blvd./Windmere Rd. & Cortez Blvd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	555	175	78	587	15	149	45	78	38	12	37
Future Volume (vph)	182	555	175	78	587	15	149	45	78	38	12	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	485		0	350		0	105		0	115		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			50			50			50		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.996			0.905			0.887	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	7514	0	1770	1686	0	1770	1652	0
Flt Permitted	0.299			0.421			0.723			0.674		
Satd. Flow (perm)	557	5085	1583	784	7514	0	1347	1686	0	1255	1652	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			184		6			72			39	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		840			700			700			800	
Travel Time (s)		12.7			10.6			15.9			18.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	192	584	184	82	618	16	157	47	82	40	13	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	584	184	82	634	0	157	129	0	40	52	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		10			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pl	NA	Perm	pm+pl	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6			8			4		

Lanes, Volumes, Timings

3: Bronson Blvd./Windmere Rd. & Cortez Blvd

10/27/2022

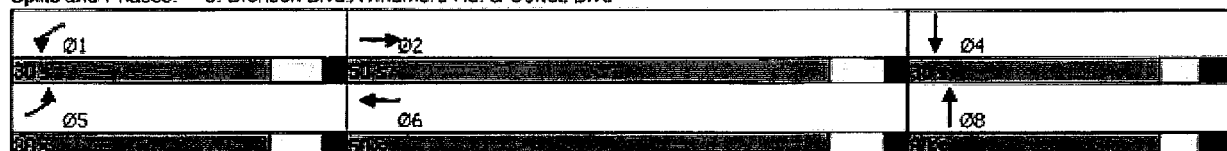
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	14.0	25.0	25.0	14.0	25.0		17.4	17.4		17.4	17.4	
Total Split (s)	30.0	50.0	50.0	30.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	27.3%	45.5%	45.5%	27.3%	45.5%		27.3%	27.3%		27.3%	27.3%	
Maximum Green (s)	23.0	43.0	43.0	23.0	43.0		22.6	22.6		22.6	22.6	
Yellow Time (s)	4.9	4.9	4.9	4.9	4.9		3.7	3.7		3.7	3.7	
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1		3.7	3.7		3.7	3.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.4	7.4		7.4	7.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min	Min	None	Min		None	None		None	None	
Walk Time (s)		7.0	7.0		7.0							
Flash Dont Walk (s)		11.0	11.0		11.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effcl Green (s)	28.8	20.6	20.6	22.6	15.1		12.6	12.6		12.6	12.6	
Actuated g/C Ratio	0.49	0.35	0.35	0.38	0.26		0.21	0.21		0.21	0.21	
v/c Ratio	0.40	0.33	0.27	0.19	0.33		0.55	0.31		0.15	0.14	
Control Delay	10.4	16.6	4.6	9.3	19.1		29.0	12.4		20.7	10.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.4	16.6	4.6	9.3	19.1		29.0	12.4		20.7	10.2	
LOS	B	B	A	A	B		C	B		C	B	
Approach Delay		13.1			18.0			21.5			14.8	
Approach LOS		B			B			C			B	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 59.1
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 16.0
 Intersection Capacity Utilization 63.2%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B

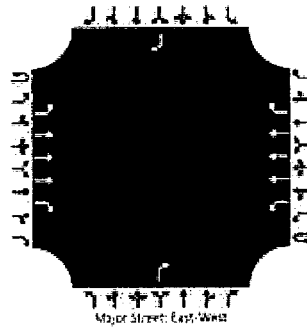
Spills and Phases: 3: Bronson Blvd./Windmere Rd. & Cortez Blvd



HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst		Intersection	
Agency/Co		Jurisdiction	
Date Performed	9/23/2022	East/West Street	Cortez Blvd
Analysis Year	2022	North/South Street	Parkland Ave
Time Analyzed	PM Peak	Peak Hour Factor	0.94
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Peakseason Traffic and Existing/Budgeted Geometry		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	10	1	2	3	40	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	3	1	0	1	3	1		0	0	1		0	0	1
Configuration		L	T	R		L	T	R				R				R
Volume (veh/h)	6	12	653	37	35	58	597	38				28				20
Percent Heavy Vehicles (%)	3	3			3	3						3				3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)	5.6	5.3			5.6	5.3						7.1				7.1
Critical Headway (sec)	5.66	5.36			5.66	5.36						7.16				7.16
Base Follow-Up Headway (sec)	2.3	3.1			2.3	3.1						3.9				3.9
Follow-Up Headway (sec)	2.33	3.13			2.33	3.13						3.93				3.93

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		19				99						30				21
Capacity, c (veh/h)		625				594						552				576
v/c Ratio		0.03				0.17						0.05				0.04
95% Queue Length, Q ₉₅ (veh)		0.1				0.6						0.2				0.1
Control Delay (s/veh)		10.9				12.3						11.9				11.5
Level of Service (LOS)		B				B						B				B
Approach Delay (s/veh)	0.3				1.6				11.9				11.5			
Approach LOS									B				B			

Lanes, Volumes, Timings
1: Kettering Rd./Croom Rital Rd. & Cortez Blvd

10/28/2022

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↖	↖	↑↑↑	↖		↖	↖		↖	↖
Traffic Volume (vph)	31	648	44	28	571	14	59	2	45	7	2	5
Future Volume (vph)	31	648	44	28	571	14	59	2	45	7	2	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		1000	540		440	0		470	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	100			100			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr			0.850			0.850			0.850		0.952	
Flt Protected	0.950			0.950				0.954			0.976	
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	0	1777	1583	0	1731	0
Flt Permitted	0.950			0.950				0.723			0.809	
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	0	1347	1583	0	1435	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			145			145			138		5	
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		2695			10277			1000			500	
Travel Time (s)		40.8			155.7			12.4			9.7	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	32	675	46	29	595	15	61	2	47	7	2	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	675	46	29	595	15	0	63	47	0	14	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2		2	4		4	8	
Permitted Phases			6									

Lanes, Volumes, Timings

1: Kettering Rd./Croom Rital Rd. & Cortez Blvd

10/28/2022

	↗	→	↘	↖	←	↗	↖	↑	↗	↘	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	12.5	37.5	37.5	12.5	37.5	37.5	16.1	16.1	16.1	16.1	16.1	
Total Split (s)	20.0	50.0	50.0	20.0	50.0	50.0	25.0	25.0	25.0	25.0	25.0	
Total Split (%)	21.1%	52.6%	52.6%	21.1%	52.6%	52.6%	26.3%	26.3%	26.3%	26.3%	26.3%	
Maximum Green (s)	12.5	42.5	42.5	12.5	42.5	42.5	16.9	16.9	16.9	16.9	16.9	
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	7.5	7.5	7.5	7.5	7.5	7.5		8.1	8.1		8.1	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0						
Flash Dont Walk (s)		11.0	11.0		11.0	11.0						
Pedestrian Calls (#/hr)		0	0		0	0						
Act Effort Green (s)	6.8	36.0	36.0	6.7	35.9	35.9		9.3	9.3		9.3	
Actuated g/C Ratio	0.11	0.59	0.59	0.11	0.59	0.59		0.15	0.15		0.15	
v/c Ratio	0.16	0.22	0.05	0.15	0.20	0.02		0.31	0.13		0.06	
Control Delay	29.6	9.9	0.1	29.6	9.8	0.0		29.8	0.8		21.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	29.6	9.9	0.1	29.6	9.8	0.0		29.8	0.8		21.9	
LOS	C	A	A	C	A	A		C	A		C	
Approach Delay		10.1			10.5			17.4			21.9	
Approach LOS		B			B			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 60.9

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.31

Intersection Signal Delay: 10.9

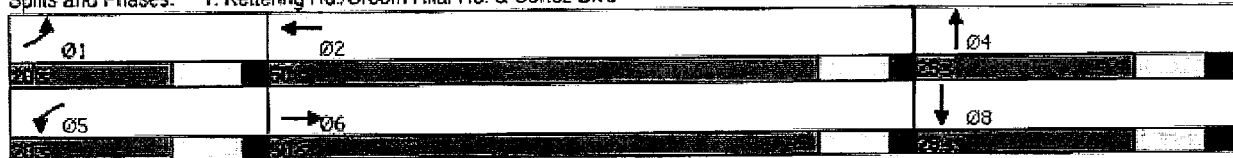
Intersection Capacity Utilization 58.1%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service B

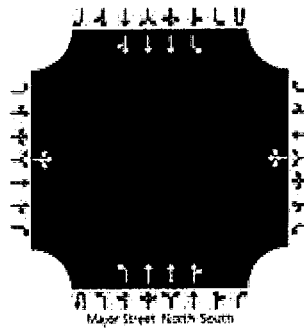
Splits and Phases: 1: Kettering Rd./Croom Rital Rd. & Cortez Blvd



HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst		Intersection	
Agency/Co.		Jurisdiction	
Date Performed	9/23/2022	East/West Street	Ridge Manor Blvd
Analysis Year	2022	North/South Street	Cortez Blvd
Time Analyzed	PM Peak	Peak Hour Factor	0.97
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Peakseason Traffic and Existing/Budgeted Geometry		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	10	1	2	3	40	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	3	0	0	1	3	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		3	2	4		3	0	58	0	2	567	6	0	116	556	0
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		6.4	6.5	7.1		6.4	6.5	7.1		5.3				5.3		
Critical Headway (sec)		6.46	6.56	7.16		6.46	6.56	7.16		5.36				5.36		
Base Follow-Up Headway (sec)		3.8	4.0	3.9		3.8	4.0	3.9		3.1				3.1		
Follow-Up Headway (sec)		3.83	4.03	3.93		3.83	4.03	3.93		3.13				3.13		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			9				63			2				120		
Capacity, c (veh/h)			281				561			622				610		
v/c Ratio			0.03				0.11			0.00				0.20		
95% Queue Length, Q ₉₅ (veh)			0.1				0.4			0.0				0.7		
Control Delay (s/veh)			18.2				12.2			10.8				12.3		
Level of Service (LOS)			C				B			B				B		
Approach Delay (s/veh)	18.2				12.2				0.0				2.1			
Approach LOS	C				B											

Lanes, Volumes, Timings
8: McKethan Rd & Cortez Blvd

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	317	219	22	303	6	282	39	8	4	13	5
Future Volume (vph)	18	317	219	22	303	6	282	39	8	4	13	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		800	500		400	400		200	400		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.961	
Flt Protected	0.950			0.950			0.950	0.964		0.950		
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1681	1706	1583	1770	1790	0
Flt Permitted	0.450			0.545			0.545	0.561		0.950		
Satd. Flow (perm)	838	5085	1583	1015	5085	1583	964	993	1583	1770	1790	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			250			181			112		5	
Link Speed (mph)		45			30			30			30	
Link Distance (ft)		10277			1013			1273			1001	
Travel Time (s)		155.7			23.0			28.9			22.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	19	330	228	23	316	6	294	41	8	4	14	5
Shared Lane Traffic (%)							43%					
Lane Group Flow (vph)	19	330	228	23	316	6	168	167	8	4	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6	7	3	8	1	7	4	
Permitted Phases	2		2	6		6	8		8			

PM Peak 01/11/2022 Peak Season Traffic and Existing/Budgeted Geometry

Synchro 10 Report
Page 1

Lanes, Volumes, Timings
8: McKethan Rd & Cortez Blvd

10/28/2022

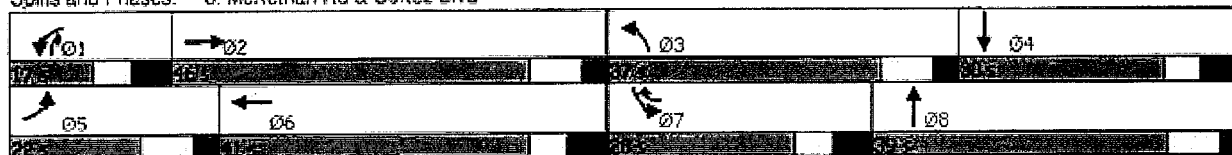
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	7	3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	20.0	27.7	27.7	13.2	26.2	26.2	27.7	25.7	13.2	26.2	26.2	
Total Split (s)	22.0	46.0	46.0	17.0	41.0	28.0	37.0	39.0	17.0	28.0	30.0	
Total Split (%)	16.9%	35.4%	35.4%	13.1%	31.5%	21.5%	28.5%	30.0%	13.1%	21.5%	23.1%	
Maximum Green (s)	13.8	37.8	37.8	8.8	32.8	19.8	28.8	31.3	8.8	19.8	21.8	
Yellow Time (s)	5.5	5.5	5.5	4.0	4.0	4.0	5.5	5.5	4.0	4.0	4.0	
All-Red Time (s)	2.7	2.7	2.7	4.2	4.2	4.2	2.7	2.2	4.2	4.2	4.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	8.2	8.2	8.2	8.2	8.2	8.2	8.2	7.7	8.2	8.2	8.2	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max	Max	None	Max	Max	Max	None	None	Max	Max	
Act Effct Green (s)	53.9	45.6	45.6	39.3	32.8	60.8	58.8	59.3	45.5	19.8	21.8	
Actuated g/C Ratio	0.41	0.35	0.35	0.30	0.25	0.47	0.45	0.46	0.35	0.15	0.17	
w/c Ratio	0.04	0.18	0.32	0.07	0.25	0.01	0.28	0.27	0.01	0.01	0.06	
Control Delay	22.4	31.1	4.1	23.5	39.4	0.0	23.2	22.7	0.0	47.2	37.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	22.4	31.1	4.1	23.5	39.4	0.0	23.2	22.7	0.0	47.2	37.5	
LOS	C	C	A	C	D	A	C	C	A	D	D	
Approach Delay		20.1			37.6			22.4			39.2	
Approach LOS		C			D			C			D	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Natural Cycle: 105
 Control Type: Actuated-Uncoordinated
 Maximum w/c Ratio: 0.32
 Intersection Signal Delay: 25.8
 Intersection Capacity Utilization 45.9%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 8: McKethan Rd & Cortez Blvd



Lanes, Volumes, Timings
18: US 301 & Cortez Blvd

12/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	204	46	62	228	16	44	214	42	11	152	45
Future Volume (vph)	50	204	46	62	228	16	44	214	42	11	152	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	300		0	200		300	300		300
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3504	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.583			0.603			0.549			0.610		
Satd. Flow (perm)	1086	3539	1583	1123	3504	0	1023	1863	1583	1136	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146		5				83			83
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		6987			1760			1365			907	
Travel Time (s)		105.9			26.7			20.7			13.7	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	56	229	52	70	256	18	49	240	47	12	171	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	229	52	70	274	0	49	240	47	12	171	51
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2		2	6			8		8	4		4

PM Peak 01/11/2022 Peak Season Traffic and Existing/Budgeted Geometry

Synchro 10 Report
Page 1

Lanes, Volumes, Timings
18: US 301 & Cortez Blvd

12/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.3	24.8	24.8	12.3	24.8		11.8	25.7	12.3	11.8	25.7	12.3
Total Split (s)	35.0	35.0	35.0	35.0	35.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%		25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Maximum Green (s)	27.7	28.2	28.2	27.7	28.2		28.2	27.3	27.7	28.2	27.3	27.7
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8		4.8	4.8	4.8	4.8	4.8	4.8
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0		2.0	2.9	2.5	2.0	2.9	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	6.8	6.8	7.3	6.8		6.8	7.7	7.3	6.8	7.7	7.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Elct Green (s)	34.6	29.6	29.6	35.2	29.9		21.8	19.5	35.1	18.2	14.0	29.3
Actuated g/C Ratio	0.44	0.38	0.38	0.45	0.38		0.28	0.25	0.45	0.23	0.18	0.38
v/c Ratio	0.10	0.17	0.08	0.12	0.20		0.14	0.52	0.06	0.04	0.51	0.08
Control Delay	12.9	20.8	0.2	12.9	20.3		20.5	30.7	1.4	19.3	37.5	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	20.8	0.2	12.9	20.3		20.5	30.7	1.4	19.3	37.5	1.9
LOS	B	C	A	B	C		C	C	A	B	D	A
Approach Delay		16.3			18.8			25.1			28.8	
Approach LOS		B			B			C			C	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 77.8
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.52
 Intersection Signal Delay: 21.7
 Intersection Capacity Utilization 50.2%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 18: US 301 & Cortez Blvd

 Ø1	 Ø2	 Ø3	 Ø4
 Ø5	 Ø6	 Ø7	 Ø8

Lanes, Volumes, Timings
3: Cortez Blvd & Main Str

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	934	12	3	899	9	15	1	2	12	2	100
Future Volume (vph)	76	934	12	3	899	9	15	1	2	12	2	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	300		0	300		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.900			0.853	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1676	0	1770	1589	0
Flt Permitted	0.247			0.285			0.702			0.756		
Satd. Flow (perm)	460	3539	1583	531	3539	1583	1308	1676	0	1408	1589	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			109		2			105	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		862			2594			709			741	
Travel Time (s)		13.1			39.3			16.1			16.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	80	983	13	3	946	9	16	1	2	13	2	105
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	983	13	3	946	9	16	3	0	13	107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		

Lanes, Volumes, Timings
3: Cortez Blvd & Main Str

10/27/2022

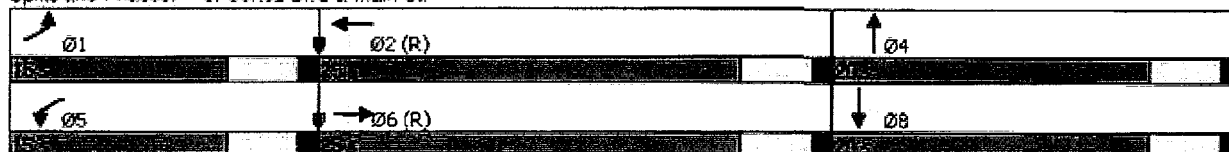
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	20.0	20.0		20.0	20.0	
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	20.0	20.0		20.0	20.0	
Total Split (%)	25.0%	41.7%	41.7%	25.0%	41.7%	41.7%	33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	10.5	20.5	20.5	10.5	20.5	20.5	15.5	15.5		15.5	15.5	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	45.7	45.1	45.1	42.8	40.4	40.4	6.8	6.8		6.8	6.8	
Actuated g/C Ratio	0.76	0.75	0.75	0.71	0.67	0.67	0.11	0.11		0.11	0.11	
v/c Ratio	0.16	0.37	0.01	0.01	0.40	0.01	0.11	0.02		0.08	0.39	
Control Delay	3.3	4.9	0.0	3.0	7.6	0.0	24.5	18.3		23.9	10.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	3.3	4.9	0.0	3.0	7.6	0.0	24.5	18.3		23.9	10.8	
LOS	A	A	A	A	A	A	C	B		C	B	
Approach Delay		4.7			7.5			23.6			12.2	
Approach LOS		A			A			C			B	

Intersection Summary:

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 50 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.40
 Intersection Signal Delay: 6.5
 Intersection Capacity Utilization 48.7%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 3: Cortez Blvd & Main Str



HCS7 Two-Way Stop-Control Report

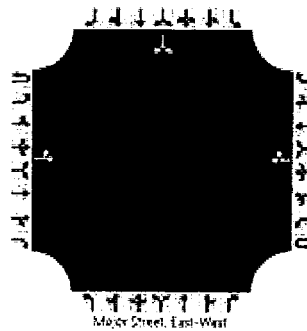
General Information

Analyst	
Agency/Co.	
Date Performed	9/23/2022
Analysis Year	2022
Time Analyzed	PM Peak
Intersection Orientation	East-West
Project Description	Peakseason Traffic and Existing/Budgeted Geometry

Site Information

Intersection	
Jurisdiction	
East/West Street	Powerline Rd
North/South Street	Kettering Rd
Peak Hour Factor	0.50
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	10	1	2	3	40	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		27	4				2	3						2		12
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		54													28	
Capacity, c (veh/h)		1603													1032	
v/c Ratio		0.03													0.03	
95% Queue Length, Q ₉₅ (veh)		0.1													0.1	
Control Delay (s/veh)		7.3													8.6	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	6.4												8.6			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

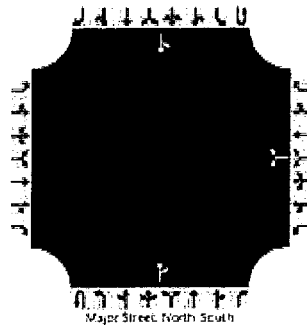
General Information

Analyst	
Agency/Co.	
Date Performed	9/23/2022
Analysis Year	2022
Time Analyzed	PM Peak
Intersection Orientation	North-South
Project Description	Peakseason Traffic and Existing/Budgeted Geometry

Site Information

Intersection	
Jurisdiction	
East/West Street	Powerline Rd
North/South Street	Lockhart Rd
Peak Hour Factor	0.48
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	10	1	2	3	40	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						12		72			7	4		6	9	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type & Storage					Undivided											

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.43		6.23						4.13		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.53		3.33						2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						175								13		
Capacity, c (veh/h)						1037								1586		
v/c Ratio						0.17								0.01		
95% Queue Length, Q ₉₅ (veh)						0.6								0.0		
Control Delay (s/veh)						9.2								7.3		
Level of Service (LOS)						A								A		
Approach Delay (s/veh)					9.2								3.0			
Approach LOS					A											

BACKGROUND WITH EXISTING/BUDGETED IMPROVEMENTS



LINCKS & ASSOCIATES, INC.

Lanes, Volumes, Timings

11: Cortez Blvd & East Jefferson St & Jasmine Dr

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	13	446	13	758	451	26	7	176	907	35	131	4
Future Volume (vph)	13	446	13	758	451	26	7	176	907	35	131	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		300	400		400	400		0	300		0
Storage Lanes	1		1	2		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1770	1863	1583	1770	1855	0
Flt Permitted	0.950			0.950			0.554			0.433		
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1032	1863	1583	807	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			61			747			
Link Speed (mph)		45			45			45			30	
Link Distance (ft)		2005			1665			2021			1421	
Travel Time (s)		30.4			25.2			30.6			32.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	14	465	14	790	470	27	7	183	945	36	136	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	465	14	790	470	27	7	183	945	36	140	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Free	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases			6			2	4		Free	8		

PM peak 09/16/2022 Background Traffic and Existing/Budgeted Geometry

Synchro 10 Report

Page 3

Lanes, Volumes, Timings

11: Cortez Blvd & East Jefferson St & Jasmine Dr

10/28/2022

	↖	→	↗	↖	←	↗	↖	↗	↖	↗	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6	6	5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5		22.5	22.5	
Total Split (s)	10.0	25.0	25.0	35.0	50.0	50.0	30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	27.8%	27.8%	38.9%	55.6%	55.6%	33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	6.0	21.0	21.0	31.0	46.0	46.0	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	6.3	37.6	37.6	26.2	65.5	65.5	14.1	14.1	90.0	14.1	14.1	
Actuated g/C Ratio	0.07	0.42	0.42	0.29	0.73	0.73	0.16	0.16	1.00	0.16	0.16	
v/c Ratio	0.11	0.31	0.02	0.79	0.18	0.02	0.04	0.63	0.60	0.29	0.48	
Control Delay	40.8	20.2	0.1	35.3	5.2	0.5	30.1	44.5	1.7	37.7	38.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	40.8	20.2	0.1	35.3	5.2	0.5	30.1	44.5	1.7	37.7	38.6	
LOS	D	C	A	D	A	A	C	D	A	D	D	
Approach Delay		20.2			23.6			8.7			38.4	
Approach LOS		C			C			A			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 55 (61%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 18.4

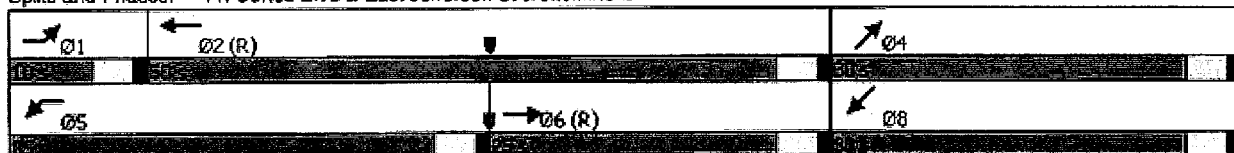
Intersection Capacity Utilization 60.7%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service B

Splits and Phases: 11: Cortez Blvd & East Jefferson St & Jasmine Dr

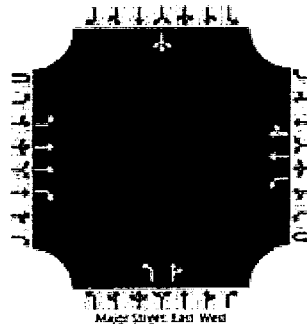


HCS7 Two-Way Stop-Control Report

General Information

Analyst		Intersection	
Agency/Co.		Jurisdiction	
Date Performed	9/23/2022	East/West Street	Cortez Blvd
Analysis Year	2035	North/South Street	Lockhart Rd
Time Analyzed	PM Peak	Peak Hour Factor	0.96
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Background Traffic and Existing/Budgeted Geometry		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	10	1	2	3	4	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	1	0	1	2	0		1	1	0		0	1	0
Configuration		L	T	R		L	T	TR		L		TR			LTR	
Volume (veh/h)	1	0	710	22	4	50	942	0		77	0	54		0	0	0
Percent Heavy Vehicles (%)	3	3			3	3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No															
Median Type Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)	6.4	4.1			6.4	4.1				7.5	6.5	6.5		7.5	6.5	6.9
Critical Headway (sec)	6.46	4.16			6.46	4.16				7.56	6.56	6.95		7.56	6.56	6.96
Base Follow-Up Headway (sec)	2.5	2.2			2.5	2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)	2.53	2.23			2.53	2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1			56				80		56			0		
Capacity, c (veh/h)		339			786				226		625					
v/c Ratio		0.00			0.07				0.36		0.09					
95% Queue Length, Q ₉₅ (veh)		0.0			0.2				1.5		0.3					
Control Delay (s/veh)		15.7			9.9				29.5		11.3					
Level of Service (LOS)		C			A				D		B					
Approach Delay (s/veh)	0.0				0.5				22.0							
Approach LOS									C							

Lanes, Volumes, Timings
2: I-75 NB/I-75 SB & Cortez Blvd

12/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	777	111	305	918	205	147	0	546	191	0	362
Future Volume (vph)	182	777	111	305	918	205	147	0	546	191	0	362
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	435		0	620		0			545	0		650
Storage Lanes	2		1	1		1	3		2	3		2
Taper Length (ft)	50			100			25			25		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.94	1.00	0.88	0.94	1.00	0.88
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	4990	0	2787	4990	0	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	4990	0	2787	4990	0	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			295			295			461			369
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1000			840			750			850	
Travel Time (s)		15.2			12.7			17.0			19.3	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	186	793	113	311	937	209	150	0	557	195	0	369
Shared Lane Traffic (%)												
Lane Group Flow (vph)	186	793	113	311	937	209	150	0	557	195	0	369
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			36			36	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1		1	1		1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left		Right	Left		Right
Leading Detector (ft)	20	100	20	20	100	20	20		20	20		20
Trailing Detector (ft)	0	0	0	0	0	0	0		0	0		0
Detector 1 Position(ft)	0	0	0	0	0	0	0		0	0		0
Detector 1 Size(ft)	20	6	20	20	6	20	20		20	20		20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3			7		
Permitted Phases			2			6			8			4

PM Peak 01/11/2022 Background Traffic and Existing/Budgeted Geometry

Synchro 10 Report
Page 1

Lanes, Volumes, Timings
2: I-75 NB/I-75 SB & Cortez Blvd

12/09/2022

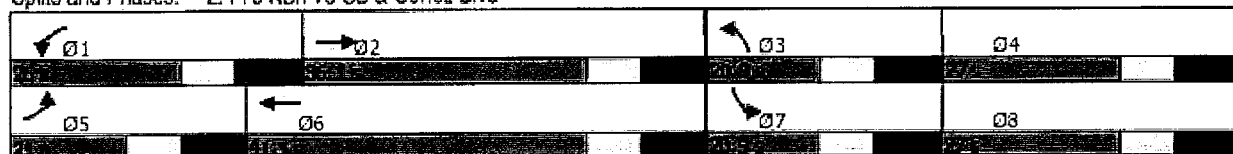
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	6	3		8	7		4
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	10.0		5.0	10.0		10.0
Minimum Split (s)	17.9	28.9	28.9	17.9	28.9	28.9	20.9		25.0	20.9		20.9
Total Split (s)	21.0	36.1	36.1	26.0	41.1	41.1	20.9		27.0	20.9		27.0
Total Split (%)	19.1%	32.8%	32.8%	23.6%	37.4%	37.4%	19.0%		24.5%	19.0%		24.5%
Maximum Green (s)	10.1	25.2	25.2	15.1	30.2	30.2	10.0		16.1	10.0		16.1
Yellow Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9		4.9	4.9		4.9
All-Red Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)	10.9	10.9	10.9	10.9	10.9	10.9	10.9		10.9	10.9		10.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead		Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0
Recall Mode	None	Min	Min	None	Min	Min	None		None	None		None
Act Effct Green (s)	9.5	22.0	22.0	13.4	25.9	25.9	10.0		11.7	10.0		11.7
Actuated g/C Ratio	0.09	0.22	0.22	0.13	0.26	0.26	0.10		0.12	0.10		0.12
v/c Ratio	0.58	0.72	0.20	0.68	0.72	0.33	0.30		0.76	0.39		0.57
Control Delay	52.7	41.0	0.8	50.7	37.8	2.0	45.6		16.3	46.6		8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Total Delay	52.7	41.0	0.8	50.7	37.8	2.0	45.6		16.3	46.6		8.2
LOS	D	D	A	D	D	A	D		B	D		A
Approach Delay		38.8			35.4			22.5			21.5	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 101
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 31.9
Intersection Capacity Utilization 59.2%
Analysis Period (min) 15

Intersection LOS: C
ICU Level of Service B

Splits and Phases: 2: I-75 NB/I-75 SB & Cortez Blvd



Lanes, Volumes, Timings

3: Bronson Blvd./Windmere Rd. & Cortez Blvd

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	227	1081	219	98	1114	19	186	56	98	48	15	46
Future Volume (vph)	227	1081	219	98	1114	19	186	56	98	48	15	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	485		0	350		0	105		0	115		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			50			50			50		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.997			0.905			0.887	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	7521	0	1770	1686	0	1770	1652	0
Flt Permitted	0.130			0.238			0.715			0.654		
Satd. Flow (perm)	242	5085	1583	443	7521	0	1332	1686	0	1218	1652	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			231		3			82			48	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		840			700			700			800	
Travel Time (s)		12.7			10.6			15.9			18.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	239	1138	231	103	1173	20	196	59	103	51	16	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	1138	231	103	1193	0	196	162	0	51	64	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		10			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6			8		4			

Lanes, Volumes, Timings

3: Bronson Blvd./Windmere Rd. & Cortez Blvd

10/28/2022

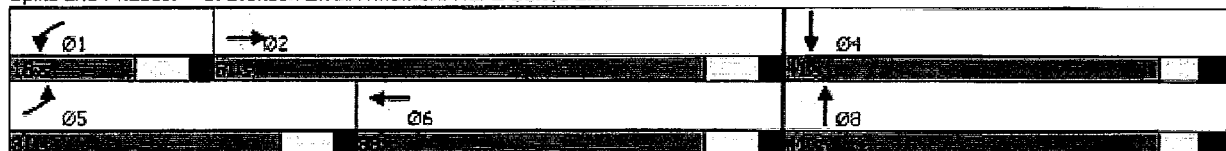
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	14.0	25.0	25.0	14.0	25.0		17.4	17.4		17.4	17.4	
Total Split (s)	31.0	51.0	51.0	18.0	38.0		41.0	41.0		41.0	41.0	
Total Split (%)	28.2%	46.4%	46.4%	16.4%	34.5%		37.3%	37.3%		37.3%	37.3%	
Maximum Green (s)	24.0	44.0	44.0	11.0	31.0		33.6	33.6		33.6	33.6	
Yellow Time (s)	4.9	4.9	4.9	4.9	4.9		3.7	3.7		3.7	3.7	
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1		3.7	3.7		3.7	3.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.4	7.4		7.4	7.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min	Min	None	Min		None	None		None	None	
Walk Time (s)		7.0	7.0		7.0							
Flash Dont Walk (s)		11.0	11.0		11.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	41.2	30.8	30.8	30.1	21.9		17.2	17.2		17.2	17.2	
Actuated g/C Ratio	0.55	0.41	0.41	0.40	0.29		0.23	0.23		0.23	0.23	
v/c Ratio	0.59	0.54	0.29	0.32	0.54		0.64	0.36		0.18	0.15	
Control Delay	19.2	19.5	3.8	12.8	23.9		37.8	16.1		26.7	11.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.2	19.5	3.8	12.8	23.9		37.8	16.1		26.7	11.9	
LOS	B	B	A	B	C		D	B		C	B	
Approach Delay		17.2			23.0			28.0			18.4	
Approach LOS		B			C			C			B	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 74.7
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 20.6
 Intersection Capacity Utilization 69.4%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service C

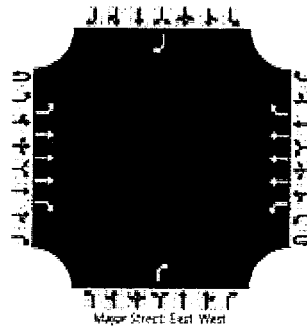
Splits and Phases: 3: Bronson Blvd./Windmere Rd. & Cortez Blvd



HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst		Intersection	
Agency/Co.		Jurisdiction	
Date Performed	9/23/2022	East/West Street	Cortez Blvd
Analysis Year	2035	North/South Street	Parkland Ave
Time Analyzed	PM Peak	Peak Hour Factor	0.94
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Background Traffic and Existing/Budgeted Geometry		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	3	1	0	1	3	1		0	0	1		0	0	1
Configuration		L	T	R		L	T	R				R				R
Volume (veh/h)	8	15	1204	46	44	73	1127	48				35				25
Percent Heavy Vehicles (%)	3	3			3	3						3				3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)	5.6	5.3			5.6	5.3						7.1				7.1
Critical Headway (sec)	5.66	5.36			5.66	5.36						7.16				7.16
Base Follow-Up Headway (sec)	2.3	3.1			2.3	3.1						3.9				3.9
Follow-Up Headway (sec)	2.33	3.13			2.33	3.13						3.93				3.93

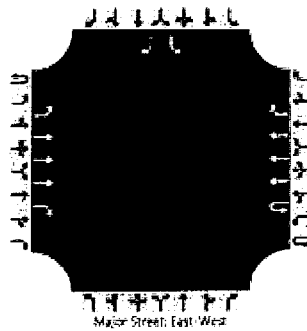
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		24				124						37				27
Capacity, c (veh/h)		338				311						356				379
v/c Ratio		0.07				0.40						0.10				0.07
95% Queue Length, Q ₉₅ (veh)		0.2				1.9						0.3				0.2
Control Delay (s/veh)		16.5				24.1						16.3				15.2
Level of Service (LOS)		C				C						C				C
Approach Delay (s/veh)	0.3				2.2				16.3				15.2			
Approach LOS									C				C			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst		Intersection	
Agency/Co.		Jurisdiction	
Date Performed	9/23/2022	East/West Street	Cortez Blvd
Analysis Year	2035	North/South Street	Sherman Hills Realignment
Time Analyzed	PM Peak	Peak Hour Factor	0.95
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Background Traffic and Existing/Budgeted Geometry		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	10	1	2	3	40	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	3	1	1	0	3	1		0	0	0		1	0	1
Configuration		L	T	R	U		T	R						L		R
Volume (veh/h)	0	170	1291	0	0		1161	37						72		2
Percent Heavy Vehicles (%)	3	3			3									3		3
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized	No				No								No			
Median Type Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		5.3			5.6									6.4		7.1
Critical Headway (sec)		5.36			5.66									6.46		7.16
Base Follow-Up Headway (sec)		3.1			2.3									3.8		3.9
Follow-Up Headway (sec)		3.13			2.33									3.83		3.93

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		179			0									76		2
Capacity, c (veh/h)		290			440									66		372
v/c Ratio		0.62			0.00									1.16		0.01
95% Queue Length, Q ₉₅ (veh)		3.8			0.0									6.0		0.0
Control Delay (s/veh)		35.6			13.2									267.4		14.7
Level of Service (LOS)		E			B									F		B
Approach Delay (s/veh)	4.1				0.0								260.6			
Approach LOS													F			

Lanes, Volumes, Timings

1: Kettering Rd./Croom Rital Rd. & Cortez Blvd

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	39	810	442	148	714	18	454	2	164	9	2	6
Future Volume (vph)	39	810	442	148	714	18	454	2	164	9	2	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		1000	540		440	0		470	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	100			100			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.952	
Flt Protected	0.950			0.950				0.953			0.974	
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	0	1775	1583	0	1727	0
Flt Permitted	0.950			0.950				0.715			0.763	
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	0	1332	1583	0	1353	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			460			238			171		6	
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		2060			10277			1000			500	
Travel Time (s)		31.2			155.7			12.4			9.7	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	41	844	460	154	744	19	473	2	171	9	2	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	844	460	154	744	19	0	475	171	0	17	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases			6			2	4		4	8		

Lanes, Volumes, Timings

1: Kettering Rd./Croom Rital Rd. & Cortez Blvd

10/26/2022

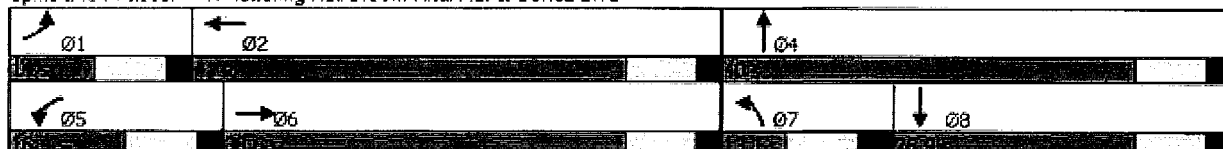
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	7	4	4	8	8	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	5.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	12.5	37.5	37.5	12.5	37.5	37.5	13.1	16.1	16.1	16.1	16.1	
Total Split (s)	14.0	38.6	38.6	16.4	41.0	41.0	13.1	40.0	40.0	26.9	26.9	
Total Split (%)	14.7%	40.6%	40.6%	17.3%	43.2%	43.2%	13.8%	42.1%	42.1%	28.3%	28.3%	
Maximum Green (s)	6.5	31.1	31.1	8.9	33.5	33.5	5.0	31.9	31.9	18.8	18.8	
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	7.5	7.5	7.5	7.5	7.5	7.5		8.1	8.1		8.1	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0						
Flash Dont Walk (s)		11.0	11.0		11.0	11.0						
Pedestrian Calls (#/hr)		0	0		0	0						
Act Effct Green (s)	6.3	30.2	30.2	8.9	38.2	38.2		31.9	31.9		31.9	
Actuated g/C Ratio	0.07	0.32	0.32	0.09	0.41	0.41		0.34	0.34		0.34	
v/c Ratio	0.35	0.52	0.56	0.92	0.36	0.02		1.05	0.26		0.04	
Control Delay	50.4	27.4	5.3	96.9	21.2	0.1		89.5	4.8		16.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	50.4	27.4	5.3	96.9	21.2	0.1		89.5	4.8		16.8	
LOS	D	C	A	F	C	A		F	A		B	
Approach Delay		20.5			33.5			67.0			16.8	
Approach LOS		C			C			E			B	

Intersection Summary

Area Type: Other
 Cycle Length: 95
 Actuated Cycle Length: 94.1
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 34.8
 Intersection Capacity Utilization 84.4%
 Analysis Period (min): 15

Intersection LOS: C
 ICU Level of Service E

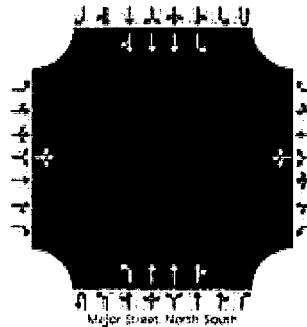
Splits and Phases: 1: Kettering Rd./Croom Rital Rd. & Cortez Blvd



HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst		Intersection	
Agency/Co.		Jurisdiction	
Date Performed	9/23/2022	East/West Street	Ridge Manor Blvd
Analysis Year	2035	North/South Street	Cortez Blvd
Time Analyzed	PM Peak	Peak Hour Factor	0.97
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Background Traffic and Existing/Budgeted Geometry		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	10	1	2	3	40	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	3	0	0	1	3	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		4	2	5		4	0	70	0	2	703	7	0	145	686	0
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		6.4	6.5	7.1		6.4	6.5	7.1		5.3				5.3		
Critical Headway (sec)		6.46	6.56	7.16		6.46	6.56	7.16		5.36				5.36		
Base Follow-Up Headway (sec)		3.8	4.0	3.9		3.8	4.0	3.9		3.1				3.1		
Follow-Up Headway (sec)		3.83	4.03	3.93		3.83	4.03	3.93		3.13				3.13		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			11				76			2				149		
Capacity, c (veh/h)			196				489			531				523		
v/c Ratio			0.06				0.16			0.00				0.29		
95% Queue Length, Q ₉₅ (veh)			0.2				0.5			0.0				1.2		
Control Delay (s/veh)			24.5				13.7			11.8				14.6		
Level of Service (LOS)			C				B			B				B		
Approach Delay (s/veh)	24.5				13.7				0.0				2.5			
Approach LOS	C				B											

Lanes, Volumes, Timings
8: McKethan Rd & Cortez Blvd/SR 50

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	393	271	27	372	7	332	46	9	5	15	6
Future Volume (vph)	22	393	271	27	372	7	332	46	9	5	15	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		800	500		400	400		200	400		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.959	
Flt Protected	0.950			0.950			0.950	0.964		0.950		
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1681	1706	1583	1770	1786	0
Flt Permitted	0.423			0.503			0.565	0.582		0.950		
Satd. Flow (perm)	788	5085	1583	937	5085	1583	1000	1030	1583	1770	1786	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			282			112			112		6	
Link Speed (mph)		45			30			30			30	
Link Distance (ft)		10277			1013			1273			1001	
Travel Time (s)		155.7			23.0			28.9			22.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	23	409	282	28	388	7	346	48	9	5	16	6
Shared Lane Traffic (%)							43%					
Lane Group Flow (vph)	23	409	282	28	388	7	197	197	9	5	22	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pl	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6	7	3	8	1	7	4	
Permitted Phases	2		2	6		6	8		8			

PM Peak 01/11/2022 Background Traffic and Existing/Budgeted Geometry

Synchro 10 Report
Page 1

Lanes, Volumes, Timings
8: McKethan Rd & Cortez Blvd/SR 50

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	7	3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	20.0	27.7	27.7	13.2	26.2	26.2	27.7	25.7	13.2	26.2	26.2	
Total Split (s)	22.0	49.0	49.0	16.0	43.0	28.0	35.0	37.0	16.0	28.0	30.0	
Total Split (%)	16.9%	37.7%	37.7%	12.3%	33.1%	21.5%	26.9%	28.5%	12.3%	21.5%	23.1%	
Maximum Green (s)	13.8	40.8	40.8	7.8	34.8	19.8	26.8	29.3	7.8	19.8	21.8	
Yellow Time (s)	5.5	5.5	5.5	4.0	4.0	4.0	5.5	5.5	4.0	4.0	4.0	
All-Red Time (s)	2.7	2.7	2.7	4.2	4.2	4.2	2.7	2.2	4.2	4.2	4.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	8.2	8.2	8.2	8.2	8.2	8.2	8.2	7.7	8.2	8.2	8.2	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max	Max	None	Max	Max	Max	None	None	Max	Max	
Act Effct Green (s)	55.8	47.5	47.5	41.4	34.8	62.8	55.6	56.6	43.6	19.8	21.8	
Actuated g/C Ratio	0.43	0.37	0.37	0.32	0.27	0.48	0.43	0.44	0.34	0.15	0.17	
v/c Ratio	0.05	0.22	0.37	0.08	0.29	0.01	0.35	0.33	0.01	0.02	0.07	
Control Delay	21.3	30.2	5.1	22.5	38.4	0.0	25.4	24.9	0.0	47.2	37.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	21.3	30.2	5.1	22.5	38.4	0.0	25.4	24.9	0.0	47.2	37.2	
LOS	C	C	A	C	D	A	C	C	A	D	D	
Approach Delay		20.0			36.7			24.6			39.0	
Approach LOS		B			D			C			D	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.37

Intersection Signal Delay: 26.0

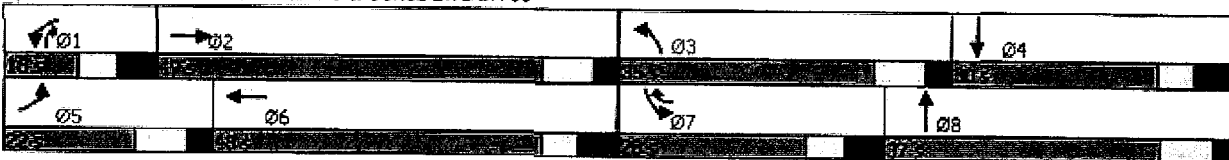
Intersection Capacity Utilization 48.9%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service A

Splits and Phases: B: McKethan Rd & Cortez Blvd/SR 50



Lanes, Volumes, Timings
18: US 301 & Cortez Blvd

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	251	56	72	266	19	55	263	53	14	184	54
Future Volume (vph)	61	251	56	72	266	19	55	263	53	14	184	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	300		0	200		300	300		300
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3504	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.558			0.573			0.495			0.527		
Satd. Flow (perm)	1039	3539	1583	1067	3504	0	922	1863	1583	982	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146		5				83			83
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		6987			1760			1365			907	
Travel Time (s)		105.9			26.7			20.7			13.7	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	69	282	63	81	299	21	62	296	60	16	207	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	69	282	63	81	320	0	62	296	60	16	207	61
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2		2	6			8		8	4		4

Lanes, Volumes, Timings
18: US 301 & Cortez Blvd

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.3	24.8	24.8	12.3	24.8		11.8	25.7	12.3	11.8	25.7	12.3
Total Split (s)	35.0	35.0	35.0	35.0	35.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%		25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Maximum Green (s)	27.7	28.2	28.2	27.7	28.2		28.2	27.3	27.7	28.2	27.3	27.7
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8		4.8	4.8	4.8	4.8	4.8	4.8
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0		2.0	2.9	2.5	2.0	2.9	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	6.8	6.8	7.3	6.8		6.8	7.7	7.3	6.8	7.7	7.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effect Green (s)	35.0	29.5	29.5	35.5	29.8		27.7	23.7	39.8	23.0	17.4	33.3
Actuated g/C Ratio	0.41	0.35	0.35	0.42	0.35		0.33	0.28	0.47	0.27	0.21	0.39
v/c Ratio	0.14	0.23	0.10	0.16	0.26		0.16	0.57	0.08	0.05	0.54	0.09
Control Delay	15.4	24.2	0.3	15.4	23.8		19.9	33.1	2.2	18.8	38.2	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	24.2	0.3	15.4	23.8		19.9	33.1	2.2	18.8	38.2	2.7
LOS	B	C	A	B	C		B	C	A	B	D	A
Approach Delay		19.1			22.1			26.7			29.4	
Approach LOS		B			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 84.7

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 23.9

Intersection Capacity Utilization 54.0%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service A

Splits and Phases: 18: US 301 & Cortez Blvd

 Ø1	 Ø2	 Ø3	 Ø4
 Ø5	 Ø6	 Ø7	 Ø8

Lanes, Volumes, Timings
3: Cortez Blvd & Main Str

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	1177	15	3	1133	11	19	1	2	15	2	126
Future Volume (vph)	95	1177	15	3	1133	11	19	1	2	15	2	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	300		0	300		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.900			0.852	
Flt Protected	0.950			0.950			0.950			0.950		
Sald. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1676	0	1770	1587	0
Flt Permitted	0.158			0.207			0.678			0.756		
Sald. Flow (perm)	294	3539	1583	386	3539	1583	1263	1676	0	1408	1587	0
Right Turn on Red			Yes			Yes			Yes			Yes
Sald. Flow (RTOR)			109			109		2			133	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		862			2594			709			741	
Travel Time (s)		13.1			39.3			16.1			16.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	100	1239	16	3	1193	12	20	1	2	16	2	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	1239	16	3	1193	12	20	3	0	16	135	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		

Lanes, Volumes, Timings
3: Cortez Blvd & Main Str

10/28/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	20.0	20.0		20.0	20.0	
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	20.0	20.0		20.0	20.0	
Total Split (%)	25.0%	41.7%	41.7%	25.0%	41.7%	41.7%	33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	10.5	20.5	20.5	10.5	20.5	20.5	15.5	15.5		15.5	15.5	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effcl Green (s)	45.6	44.9	44.9	41.4	37.9	37.9	7.0	7.0		7.0	7.0	
Actuated g/C Ratio	0.76	0.75	0.75	0.69	0.63	0.63	0.12	0.12		0.12	0.12	
v/c Ratio	0.26	0.47	0.01	0.01	0.53	0.01	0.14	0.02		0.10	0.45	
Control Delay	4.4	5.8	0.0	3.0	10.0	0.0	24.8	18.0		23.8	10.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	4.4	5.8	0.0	3.0	10.0	0.0	24.8	18.0		23.8	10.4	
LOS	A	A	A	A	B	A	C	B		C	B	
Approach Delay		5.8			9.9			23.9			11.9	
Approach LOS		A			A			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 50 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 8.0

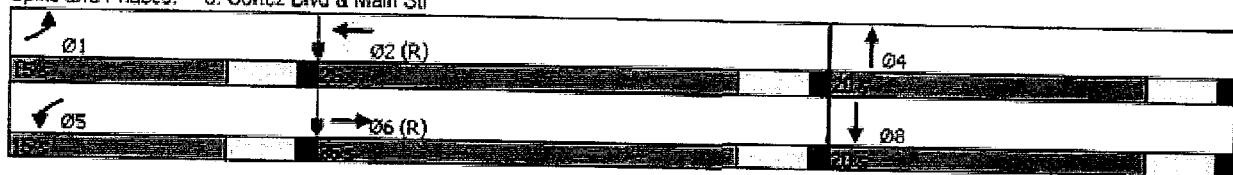
Intersection Capacity Utilization 63.7%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service B

Splits and Phases: 3: Cortez Blvd & Main Str



HCS7 Two-Way Stop-Control Report

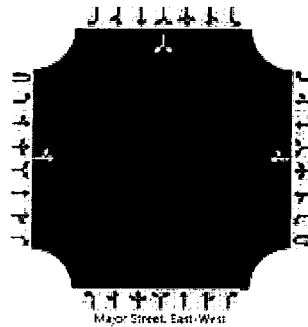
General Information

Analyst	
Agency/Co.	
Date Performed	9/23/2022
Analysis Year	2035
Time Analyzed	PM Peak
Intersection Orientation	East-West
Project Description	Background Traffic and Existing/Budgeted Geometry

Site Information

Intersection	
Jurisdiction	
East/West Street	Powerline Rd
North/South Street	Kettering Rd
Peak Hour Factor	0.50
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L*						TR							LR	
Volume (veh/h)		81	5				2	4						2		90
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type / Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

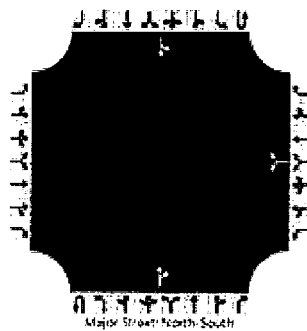
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		162													184	
Capacity, c (veh/h)		1600													1052	
v/c Ratio		0.10													0.17	
95% Queue Length, Q ₉₅ (veh)		0.3													0.6	
Control Delay (s/veh)		7.5													9.1	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	7.1												9.1			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst		Intersection	
Agency/Co.		Jurisdiction	
Date Performed	9/23/2022	East/West Street	Powerline Rd
Analysis Year	2035	North/South Street	Lockhart Rd
Time Analyzed	PM Peak	Peak Hour Factor	0.48
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Background Traffic and Existing/Budgeted Geometry		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	10	1	2	3	4	5	6	
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						15		91			9	5		8	11	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.43		6.23							4.13	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.53		3.33							2.23	

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						221									17	
Capacity, c (veh/h)						1027									1577	
v/c Ratio						0.21									0.01	
95% Queue Length, Q ₉₅ (veh)						0.8									0.0	
Control Delay (s/veh)						9.5									7.3	
Level of Service (LOS)						A									A	
Approach Delay (s/veh)					9.5								3.1			
Approach LOS					A											

BACKGROUND WITH REQUIRED IMPROVEMENTS



LINCKS & ASSOCIATES, INC.

Lanes, Volumes, Timings

23: Cortez Blvd & Sherman Hills Realignment

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	170	1291	0	0	0	1161	37	0	0	0	72	0
Future Volume (vph)	170	1291	0	0	0	1161	37	0	0	0	72	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		300		600		485	0		0	0	
Storage Lanes	1		1		1		1	0		0	1	
Taper Length (ft)	25				25			25			25	
Lane Util. Factor	1.00	0.91	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt							0.850					
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1770	5085	1863	1863	0	5085	1583	0	0	0	1770	0
Flt Permitted	0.950										0.950	
Satd. Flow (perm)	1770	5085	1863	1863	0	5085	1583	0	0	0	1770	0
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)							96					
Link Speed (mph)		45				45			30			30
Link Distance (ft)		635				2060			109			832
Travel Time (s)		9.6				31.2			2.5			18.9
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	1359	0	0	0	1222	39	0	0	0	76	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	179	1359	0	0	0	1222	39	0	0	0	76	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	NA	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)		12				12			12			12
Link Offset(ft)		0				0			0			0
Crosswalk Width(ft)		16				16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	9	15		9	15		9	15	
Number of Detectors	1	2	1	1		2	1				1	
Detector Template	Left	Thru	Right	Left		Thru	Right				Left	
Leading Detector (ft)	20	100	20	20		100	20				20	
Trailing Detector (ft)	0	0	0	0		0	0				0	
Detector 1 Position(ft)	0	0	0	0		0	0				0	
Detector 1 Size(ft)	20	6	20	20		6	20				20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex				Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0	0.0				0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0	0.0				0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0	0.0				0.0	
Detector 2 Position(ft)		94				94						
Detector 2 Size(ft)		6				6						
Detector 2 Type		Cl+Ex				Cl+Ex						
Detector 2 Channel												
Detector 2 Extend (s)		0.0				0.0						
Turn Type	Prot	NA	Perm	Perm		NA	Perm				Prot	
Protected Phases	7	4				8					6	
Permitted Phases			4	8			8					

Lanes, Volumes, Timings
23: Cortez Blvd & Sherman Hills Realignment

10/28/2022

Lane Group	SBR
Lane Configurations	7
Traffic Volume (vph)	2
Future Volume (vph)	2
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taber Length (ft)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	Yes
Satd. Flow (RTOR)	92
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.95
Adj. Flow (vph)	2
Shared Lane Traffic (%)	
Lane Group Flow (vph)	2
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6

Lanes, Volumes, Timings
23: Cortez Blvd & Sherman Hills Realignment

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Detector Phase	7	4	4	8		8	8				6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0		5.0	5.0				5.0	
Minimum Split (s)	12.0	25.0	25.0	25.0		25.0	25.0				25.4	
Total Split (s)	35.4	83.8	83.8	48.4		48.4	48.4				46.2	
Total Split (%)	27.2%	64.5%	64.5%	37.2%		37.2%	37.2%				35.5%	
Maximum Green (s)	28.4	76.8	76.8	41.4		41.4	41.4				38.8	
Yellow Time (s)	4.9	4.9	4.9	4.9		4.9	4.9				3.7	
All-Red Time (s)	2.1	2.1	2.1	2.1		2.1	2.1				3.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0				0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0		7.0	7.0				7.4	
Lead/Lag	Lead			Lag		Lag	Lag					
Lead-Lag Optimize?	Yes			Yes		Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0	3.0				3.0	
Recall Mode	None	None	None	None		None	None				Min	
Walk Time (s)		7.0	7.0	7.0		7.0	7.0				7.0	
Flash Dont Walk (s)		11.0	11.0	11.0		11.0	11.0				11.0	
Pedestrian Calls (#/hr)		0	0	0		0	0				0	
Act Effct Green (s)	13.6	47.8				26.9	26.9				9.1	
Actuated g/C Ratio	0.19	0.67				0.37	0.37				0.13	
w/c Ratio	0.53	0.40				0.64	0.06				0.34	
Control Delay	34.5	5.8				20.4	0.2				36.2	
Queue Delay	0.0	0.0				0.0	0.0				0.0	
Total Delay	34.5	5.8				20.4	0.2				36.2	
LOS	C	A				C	A				D	
Approach Delay		9.1				19.8						35.3
Approach LOS		A				B						D

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 71.8

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 14.5

Intersection Capacity Utilization 50.8%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service A

Splits and Phases: 23: Cortez Blvd & Sherman Hills Realignment





Lane Group	SBR
Detector Phase	6
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	25.4
Total Split (s)	46.2
Total Split (%)	35.5%
Maximum Green (s)	38.8
Yellow Time (s)	3.7
All-Red Time (s)	3.7
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.4
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Min
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effect Green (s)	9.1
Actuated g/C Ratio	0.13
v/c Ratio	0.01
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	
Intersection Summary	

Lanes, Volumes, Timings

1: Kettering Rd./Croom Rital Rd. & Cortez Blvd

10/26/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	810	442	148	714	18	454	2	164	9	2	6
Future Volume (vph)	39	810	442	148	714	18	454	2	164	9	2	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		1000	540		440	0		470	0		0
Storage Lanes	1		1	2		1	2		1	0		0
Taper Length (ft)	100			100			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.952	
Frt Protected	0.950			0.950			0.950				0.974	
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	1863	1583	0	1727	0
Frt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1770	5085	1583	3433	5085	1583	3433	1863	1583	0	1773	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			460			238			171		6	
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		2060			10277			1000			500	
Travel Time (s)		31.2			155.7			12.4			9.7	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	41	844	460	154	744	19	473	2	171	9	2	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	844	460	154	744	19	473	2	171	0	17	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases			6			2			4	8		

Lanes, Volumes, Timings

1: Kettering Rd./Croom Rital Rd. & Cortez Blvd

10/28/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	1	6	6	5	2	2	7	4	4	8	8	
Detector Phase	1	6	6	5	2	2	7	4	4	8	8	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	5.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	12.5	37.5	37.5	12.5	37.5	37.5	13.1	16.1	16.1	16.1	16.1	
Total Split (s)	14.0	37.9	37.9	15.0	38.9	38.9	26.0	42.1	42.1	16.1	16.1	
Total Split (%)	14.7%	39.9%	39.9%	15.8%	40.9%	40.9%	27.4%	44.3%	44.3%	16.9%	16.9%	
Maximum Green (s)	6.5	30.4	30.4	7.5	31.4	31.4	17.9	34.0	34.0	8.0	8.0	
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.5	7.5	7.5	7.5	7.5	7.5	8.1	8.1	8.1		8.1	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0						
Flash Dont Walk (s)		11.0	11.0		11.0	11.0						
Pedestrian Calls (#/hr)		0	0		0	0						
Act Effct Green (s)	6.3	30.5	30.5	7.4	37.7	37.7	15.3	20.9	20.9		8.1	
Actuated g/C Ratio	0.08	0.37	0.37	0.09	0.46	0.46	0.19	0.25	0.25		0.10	
v/c Ratio	0.30	0.45	0.53	0.50	0.32	0.02	0.74	0.00	0.32		0.09	
Control Delay	45.7	22.0	4.9	44.0	18.1	0.1	40.5	20.0	5.2		32.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
Total Delay	45.7	22.0	4.9	44.0	18.1	0.1	40.5	20.0	5.2		32.3	
LOS	D	C	A	D	B	A	D	B	A		C	
Approach Delay		16.9			22.1			31.1			32.3	
Approach LOS		B			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 82.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 21.7

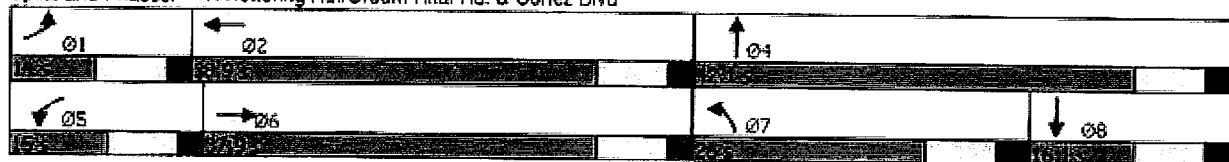
Intersection Capacity Utilization 68.1%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service C

Splits and Phases: 1: Kettering Rd./Croom Rital Rd. & Cortez Blvd



BACKGROUND PLUS PROJECT WITH REQUIRED IMPROVEMENTS FOR
BACKGROUND



LINCKS & ASSOCIATES, INC.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	13	504	13	826	490	30	7	176	1009	41	131	4
Future Volume (vph)	13	504	13	826	490	30	7	176	1009	41	131	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		300	400		400	400		0	300		0
Storage Lanes	1		1	2		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1770	1863	1583	1770	1855	0
Flt Permitted	0.950			0.950			0.554			0.433		
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1032	1863	1583	807	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			61			730		2	
Link Speed (mph)		45			45			45			30	
Link Distance (ft)		2005			1665			2021			1421	
Travel Time (s)		30.4			25.2			30.6			32.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	14	525	14	860	510	31	7	183	1051	43	136	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	525	14	860	510	31	7	183	1051	43	140	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Free	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases			6			2	4		Free	8		

	↗	→	↘	↖	←	↙	↘	↗	↖	↘	↖	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6	6	5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5		22.5	22.5	
Total Split (s)	10.0	25.0	25.0	35.0	50.0	50.0	30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	27.8%	27.8%	38.9%	55.6%	55.6%	33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	6.0	21.0	21.0	31.0	46.0	46.0	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0		7.0	7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0	0		0	0		0		0	0	
Act Effect Green (s)	6.3	35.8	35.8	28.1	65.5	65.5	14.1	14.1	90.0	14.1	14.1	
Actuated g/C Ratio	0.07	0.40	0.40	0.31	0.73	0.73	0.16	0.16	1.00	0.16	0.16	
v/c Ratio	0.11	0.37	0.02	0.80	0.20	0.03	0.04	0.63	0.66	0.34	0.48	
Control Delay	40.8	22.1	0.1	34.5	5.2	0.8	30.1	44.5	2.2	39.8	38.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	40.8	22.1	0.1	34.5	5.2	0.8	30.1	44.5	2.2	39.8	38.6	
LOS	D	C	A	C	A	A	C	D	A	D	D	
Approach Delay		22.0			23.1			8.6			38.9	
Approach LOS		C			C			A			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 55 (61%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 18.4

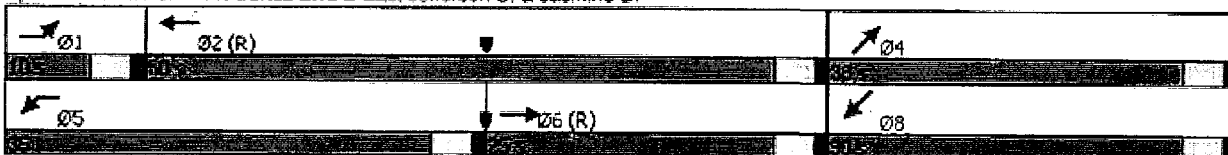
Intersection LOS: B

Intersection Capacity Utilization 64.3%

ICU Level of Service C

Analysis Period (min) 15

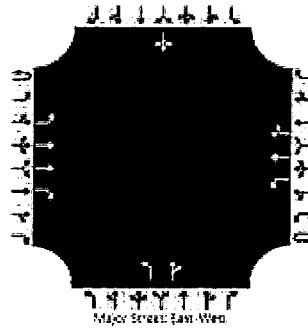
Splits and Phases: 11: Cortez Blvd & East Jefferson St & Jasmine Dr



HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst		Intersection	
Agency/Co		Jurisdiction	
Date Performed	9/23/2022	East/West Street	Cortez Blvd
Analysis Year	2035	North/South Street	Lockhart Rd
Time Analyzed	PM Peak	Peak Hour Factor	0.96
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Bck + Prj and req bck impr		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	1	0	1	2	0		1	1	0		0	1	0
Configuration		L	T	R		L	T	TR		L		TR			LTR	
Volume (veh/h)	1	0	1117	22	4	102	1217	0		77	0	130		0	0	0
Percent Heavy Vehicles (%)	3	3			3	3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No															
Median Type / Storage					Left + thru				1							

Critical and Follow-up Headways

Base Critical Headway (sec)	6.4	4.1			6.4	4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)	6.46	4.16			6.46	4.16				7.56	6.56	6.96		7.56	6.56	6.96
Base Follow-Up Headway (sec)	2.5	2.2			2.5	2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)	2.53	2.23			2.53	2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1				110				80		135			0	
Capacity, c (veh/h)		221				534				115		454				
v/c Ratio		0.00				0.21				0.70		0.30				
95% Queue Length, Q ₉₅ (veh)		0.0				0.8				3.7		1.2				
Control Delay (s/veh)		21.4				13.5				88.0		16.3				
Level of Service (LOS)		C				B				F		C				
Approach Delay (s/veh)	0.0				1.1				43.0							
Approach LOS									E							

Lanes, Volumes, Timings
2: I-75 NB/I-75 SB & Cortez Blvd

12/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	1385	111	450	1563	304	147	0	959	483	0	362
Future Volume (vph)	182	1385	111	450	1563	304	147	0	959	483	0	362
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	435		0	620		0	0		545	0		650
Storage Lanes	2		1	1		1	3		2	3		2
Taper Length (ft)	50			100			25			25		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.94	1.00	0.88	0.94	1.00	0.88
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	4990	0	2787	4990	0	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	4990	0	2787	4990	0	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			295			295			305			354
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1000			840			750			850	
Travel Time (s)		15.2			12.7			17.0			19.3	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	186	1413	113	459	1595	310	150	0	979	493	0	369
Shared Lane Traffic (%)												
Lane Group Flow (vph)	186	1413	113	459	1595	310	150	0	979	493	0	369
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			36			36	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1		1	1		1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left		Right	Left		Right
Leading Detector (ft)	20	100	20	20	100	20	20		20	20		20
Trailing Detector (ft)	0	0	0	0	0	0	0		0	0		0
Detector 1 Position(ft)	0	0	0	0	0	0	0		0	0		0
Detector 1 Size(ft)	20	6	20	20	6	20	20		20	20		20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3			7		
Permitted Phases			2			6			8			4

Lanes, Volumes, Timings
2: I-75 NB/I-75 SB & Cortez Blvd

12/09/2022

	↖	→	↘	↙	←	↖	↙	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	6	3		8	7		4
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	10.0		5.0	10.0		10.0
Minimum Split (s)	17.9	28.9	28.9	17.9	28.9	28.9	20.9		25.0	20.9		20.9
Total Split (s)	17.9	38.0	38.0	21.0	41.1	41.1	20.9		30.0	21.0		30.1
Total Split (%)	16.3%	34.5%	34.5%	19.1%	37.4%	37.4%	19.0%		27.3%	19.1%		27.4%
Maximum Green (s)	7.0	27.1	27.1	10.1	30.2	30.2	10.0		19.1	10.1		19.2
Yellow Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9		4.9	4.9		4.9
All-Red Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)	10.9	10.9	10.9	10.9	10.9	10.9	10.9		10.9	10.9		10.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead		Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0
Recall Mode	None	Min	Min	None	Min	Min	None		None	None		None
Act Effct Green (s)	7.0	27.1	27.1	10.1	30.2	30.2	10.0		19.1	10.1		19.2
Actuated g/C Ratio	0.06	0.25	0.25	0.09	0.27	0.27	0.09		0.17	0.09		0.17
v/c Ratio	0.85	1.13	0.18	1.46	1.14	0.48	0.33		1.33	1.08		0.47
Control Delay	84.0	107.2	0.7	259.0	110.4	7.2	49.0		184.8	111.5		7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Total Delay	84.0	107.2	0.7	259.0	110.4	7.2	49.0		184.8	111.5		7.3
LOS	F	F	A	F	F	A	D		F	F		A
Approach Delay		97.6			125.7			166.8			66.9	
Approach LOS		F			F			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Natural Cycle: 145
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.46
Intersection Signal Delay: 117.1
Intersection Capacity Utilization 91.0%
Analysis Period (min) 15

Intersection LOS: F
ICU Level of Service E

Splits and Phases: 2: I-75 NB/I-75 SB & Cortez Blvd

↖ Ø1	→ Ø2	↖ Ø3	Ø4
↖ Ø5	← Ø6	↖ Ø7	Ø8

Lanes, Volumes, Timings

3: Bronson Blvd./Windmere Rd. & Cortez Blvd

12/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	219	2323	312	131	1893	19	300	94	131	76	43	46
Future Volume (vph)	219	2323	312	131	1893	19	300	94	131	76	43	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	485		0	350		0	105		0	115		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			50			50			50		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999			0.913			0.923	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	7537	0	1770	1701	0	1770	1719	0
Flt Permitted	0.075			0.086			0.697			0.498		
Satd. Flow (perm)	140	5085	1583	160	7537	0	1298	1701	0	928	1719	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			259		2			61			47	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		840			700			700			800	
Travel Time (s)		12.7			10.6			15.9			18.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	231	2445	328	138	1993	20	316	99	138	80	45	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	2445	328	138	2013	0	316	237	0	80	93	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		10			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6			8			4		

PM Peak 01/11/2022 Background Plus Project Traffic and Required Background Improvements

Synchro 10 Report

Page 1

Lanes, Volumes, Timings

3: Bronson Blvd./Windmere Rd. & Cortez Blvd

12/09/2022

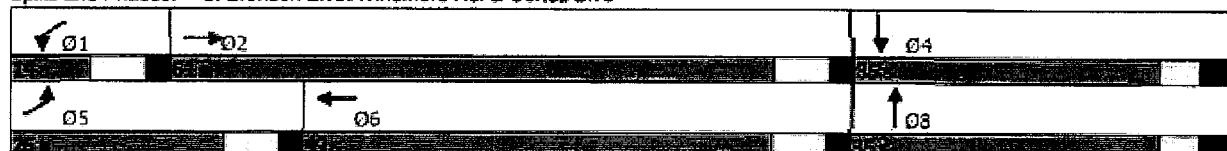
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	14.0	25.0	25.0	14.0	25.0		17.4	17.4		17.4	17.4	
Total Split (s)	26.0	61.0	61.0	14.0	49.0		35.0	35.0		35.0	35.0	
Total Split (%)	23.6%	55.5%	55.5%	12.7%	44.5%		31.8%	31.8%		31.8%	31.8%	
Maximum Green (s)	19.0	54.0	54.0	7.0	42.0		27.6	27.6		27.6	27.6	
Yellow Time (s)	4.9	4.9	4.9	4.9	4.9		3.7	3.7		3.7	3.7	
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1		3.7	3.7		3.7	3.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.4	7.4		7.4	7.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min	Min	None	Min		None	None		None	None	
Walk Time (s)		7.0	7.0		7.0							
Flash Dont Walk (s)		11.0	11.0		11.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	66.5	54.0	54.0	53.6	46.6		27.6	27.6		27.6	27.6	
Actuated g/C Ratio	0.60	0.49	0.49	0.49	0.42		0.25	0.25		0.25	0.25	
v/c Ratio	0.78	0.98	0.98	0.77	0.63		0.97	0.50		0.34	0.20	
Control Delay	42.5	41.7	5.1	50.3	26.5		85.4	30.1		38.9	18.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	42.5	41.7	5.1	50.3	26.5		85.4	30.1		38.9	18.8	
LOS	D	D	A	D	C		F	C		D	B	
Approach Delay		37.8			28.0			61.7			28.1	
Approach LOS		D			C			E			C	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 36.2
 Intersection Capacity Utilization 101.1%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service G

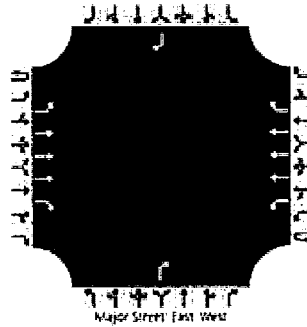
Splits and Phases: 3: Bronson Blvd./Windmere Rd. & Cortez Blvd



HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst		Intersection	
Agency/Co.		Jurisdiction	
Date Performed	9/23/2022	East/West Street	Cortez Blvd
Analysis Year	2035	North/South Street	Parkland Ave
Time Analyzed	PM Peak	Peak Hour Factor	0.94
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Bck+Prj and Reg Bck Impr		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	3	1	0	1	3	1		0	0	1		0	0	1
Configuration		L	T	R		L	T	R				R				R
Volume (veh/h)	8	15	2369	127	44	140	1938	48				160				25
Percent Heavy Vehicles (%)	3	3			3	3						3				3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type Storage					Left + Thru				1							

Critical and Follow-up Headways

Base Critical Headway (sec)	5.6	5.3			5.6	5.3						7.1				7.1
Critical Headway (sec)	5.66	5.36			5.66	5.36						7.16				7.16
Base Follow-Up Headway (sec)	2.3	3.1			2.3	3.1						3.9				3.9
Follow-Up Headway (sec)	2.33	3.13			2.33	3.13						3.93				3.93

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		24				196						170				27
Capacity, c (veh/h)		128										138				196
v/c Ratio		0.19										1.24				0.14
95% Queue Length, Q ₉₅ (veh)		0.7										10.3				0.5
Control Delay (s/veh)		39.6										216.6				26.2
Level of Service (LOS)		E										F				D
Approach Delay (s/veh)	6.1								216.6				26.2			
Approach LOS									F				D			

Lanes, Volumes, Timings

1: Kettering Rd./Croom Rital Rd. & Cortez Blvd

12/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	1135	553	437	1036	18	517	2	260	9	34	6
Future Volume (vph)	61	1135	553	437	1036	18	517	2	260	9	34	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		1000	540		440	0		470	0		0
Storage Lanes	1		1	2		1	2		1	0		0
Taper Length (ft)	100			100			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Fit			0.850			0.850			0.850		0.984	
Fit Protected	0.950			0.950			0.950				0.991	
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	1863	1583	0	1816	0
Fit Permitted	0.950			0.950			0.950				0.936	
Satd. Flow (perm)	1770	5085	1583	3433	5085	1583	3433	1863	1583	0	1716	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			576			205			271		5	
Link Speed (mph)		45			45			55			35	
Link Distance (ft)		2060			10277			1000			500	
Travel Time (s)		31.2			155.7			12.4			9.7	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	64	1182	576	455	1079	19	539	2	271	9	35	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	1182	576	455	1079	19	539	2	271	0	50	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases			6			2			4	8		

PM Peak 01/11/2022 Background Plus Project Traffic and Required Background Improvements

Synchro 10 Report

Page 1

Lanes, Volumes, Timings

1: Kettering Rd./Croom Rital Rd. & Cortez Blvd

12/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	7	4	4	8	8	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	5.0	8.0	8.0	7.9	7.9	
Minimum Split (s)	12.5	37.5	37.5	12.5	37.5	37.5	13.1	16.1	16.1	16.0	16.0	
Total Split (s)	17.0	39.0	39.0	26.0	48.0	48.0	29.0	45.0	45.0	16.0	16.0	
Total Split (%)	15.5%	35.5%	35.5%	23.6%	43.6%	43.6%	26.4%	40.9%	40.9%	14.5%	14.5%	
Maximum Green (s)	9.5	31.5	31.5	18.5	40.5	40.5	20.9	36.9	36.9	7.9	7.9	
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.5	7.5	7.5	7.5	7.5	7.5	8.1	8.1	8.1		8.1	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0						
Flash Dont Walk (s)		11.0	11.0		11.0	11.0						
Pedestrian Calls (#/hr)		0	0		0	0						
Act Effect Green (s)	8.3	31.6	31.6	17.2	43.9	43.9	19.5	31.6	31.6		8.0	
Actuated g/C Ratio	0.08	0.30	0.30	0.17	0.42	0.42	0.19	0.30	0.30		0.08	
v/c Ratio	0.45	0.76	0.65	0.80	0.50	0.02	0.84	0.00	0.40		0.36	
Control Delay	58.8	38.0	6.6	54.5	25.7	0.1	54.4	24.5	5.2		52.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
Total Delay	58.8	38.0	6.6	54.5	25.7	0.1	54.4	24.5	5.2		52.9	
LOS	E	D	A	D	C	A	D	C	A		D	
Approach Delay		28.8			33.8			37.9			52.9	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 103.8

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 32.7

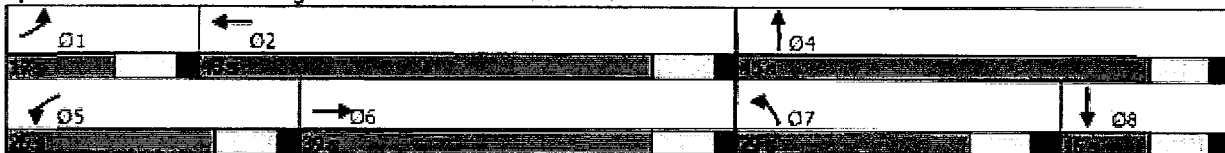
Intersection LOS: C

Intersection Capacity Utilization 78.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Kettering Rd./Croom Rital Rd. & Cortez Blvd



HCS7 Two-Way Stop-Control Report

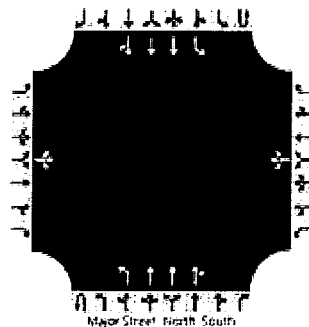
General Information

Analyst	
Agency/Co	
Date Performed	9/23/2022
Analysis Year	2035
Time Analyzed	PM Peak
Intersection Orientation	North-South
Project Description	Bck + Proj and req Bck Impr

Site Information

Intersection	
Jurisdiction	
East/West Street	Ridge Manor Blvd
North/South Street	Cortez Blvd
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	5	9	10	1	2	3	40	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	3	0	0	1	3	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		4	2	5		4	0	85	0	2	1297	7	0	155	1100	0
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized					0											
Median Type Storage	Left - Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		6.4	6.5	7.1		6.4	6.5	7.1		5.3				5.3		
Critical Headway (sec)		6.46	6.56	7.16		6.46	6.56	7.16		5.36				5.36		
Base Follow-Up Headway (sec)		3.8	4.0	3.9		3.8	4.0	3.9		3.1				3.1		
Follow-Up Headway (sec)		3.83	4.03	3.93		3.83	4.03	3.93		3.13				3.13		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			11				92			2				160		
Capacity, c (veh/h)			56				285			334				264		
v/c Ratio			0.20				0.32			0.01				0.61		
95% Queue Length, Q ₉₅ (veh)			0.7				1.3			0.0				3.6		
Control Delay (s/veh)			84.8				23.5			15.8				37.7		
Level of Service (LOS)			F				C			C				E		
Approach Delay (s/veh)	84.8				23.5				0.0				4.7			
Approach LOS	F				C											

Lanes, Volumes, Timings
8: McKethan Rd & Cortez Blvd

12/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	636	408	27	732	7	534	46	9	5	15	6
Future Volume (vph)	22	636	408	27	732	7	534	46	9	5	15	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		800	500		400	400		200	400		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.959	
Flt Protected	0.950			0.950			0.950	0.960		0.950		
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1681	1699	1583	1770	1786	0
Flt Permitted	0.225			0.388			0.545	0.545		0.950		
Satd. Flow (perm)	419	5085	1583	723	5085	1583	964	964	1583	1770	1786	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			425			181			112		6	
Link Speed (mph)		45			30			30			30	
Link Distance (ft)		10277			1013			1273			1001	
Travel Time (s)		155.7			23.0			28.9			22.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	23	663	425	28	763	7	556	48	9	5	16	6
Shared Lane Traffic (%)							46%					
Lane Group Flow (vph)	23	663	425	28	763	7	300	304	9	5	22	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6	8		8			

Lanes, Volumes, Timings
8: McKethan Rd & Cortez Blvd

12/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	7	3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	20.0	27.7	27.7	13.2	26.2	26.2	27.7	25.7	13.2	26.2	26.2	
Total Split (s)	20.0	50.8	50.8	14.0	44.8	26.2	35.0	39.0	14.0	26.2	30.2	
Total Split (%)	15.4%	39.1%	39.1%	10.8%	34.5%	20.2%	26.9%	30.0%	10.8%	20.2%	23.2%	
Maximum Green (s)	11.8	42.6	42.6	5.8	36.6	18.0	26.8	31.3	5.8	18.0	22.0	
Yellow Time (s)	5.5	5.5	5.5	4.0	4.0	4.0	5.5	5.5	4.0	4.0	4.0	
All-Red Time (s)	2.7	2.7	2.7	4.2	4.2	4.2	2.7	2.2	4.2	4.2	4.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	8.2	8.2	8.2	8.2	8.2	8.2	8.2	7.7	8.2	8.2	8.2	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max	Max	None	Max	Max	Max	None	None	Max	Max	
Act Effct Green (s)	55.3	48.2	48.2	42.3	36.6	62.8	57.0	57.5	44.7	18.0	22.0	
Actuated g/C Ratio	0.43	0.37	0.37	0.33	0.28	0.48	0.44	0.44	0.34	0.14	0.17	
v/c Ratio	0.08	0.35	0.50	0.10	0.53	0.01	0.53	0.52	0.01	0.02	0.07	
Control Delay	21.7	31.3	5.1	22.8	41.1	0.0	28.9	28.4	0.0	48.8	37.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	21.7	31.3	5.1	22.8	41.1	0.0	28.9	28.4	0.0	48.8	37.0	
LOS	C	C	A	C	D	A	C	C	A	D	D	
Approach Delay		21.1			40.1			28.2			39.2	
Approach LOS		C			D			C			D	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 28.9

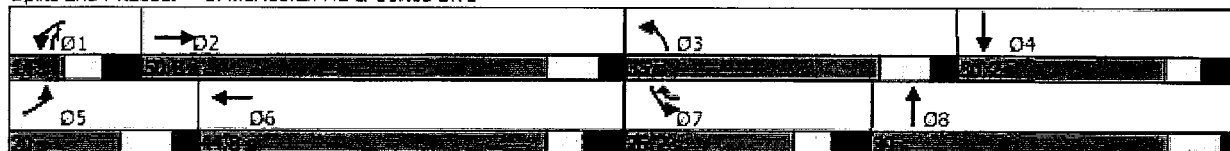
Intersection Capacity Utilization 58.4%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service B

Splits and Phases: 8: McKethan Rd & Cortez Blvd



Lanes, Volumes, Timings
18: US 301 & Cortez Blvd

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	296	72	72	333	19	78	263	53	14	184	92
Future Volume (vph)	87	296	72	72	333	19	78	263	53	14	184	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	300		0	200		300	300		300
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frnt			0.850		0.992				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3511	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.489			0.551			0.429			0.486		
Satd. Flow (perm)	911	3539	1583	1026	3511	0	799	1863	1583	905	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146		4				83			103
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		6987			1760			1365			907	
Travel Time (s)		105.9			26.7			20.7			13.7	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	98	333	81	81	374	21	88	296	60	16	207	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	333	81	81	395	0	88	296	60	16	207	103
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pl	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov	pm+pl	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2		2	6			8		8	4		4

Lanes, Volumes, Timings
18: US 301 & Cortez Blvd

10/28/2022

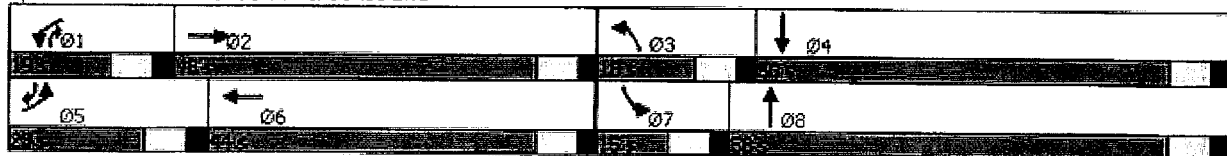
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.3	24.8	24.8	12.3	24.8		11.8	25.7	12.3	11.8	25.7	12.3
Total Split (s)	23.0	48.0	48.0	19.0	44.0		18.0	58.0	19.0	15.0	55.0	23.0
Total Split (%)	16.4%	34.3%	34.3%	13.6%	31.4%		12.9%	41.4%	13.6%	10.7%	39.3%	16.4%
Maximum Green (s)	15.7	41.2	41.2	11.7	37.2		11.2	50.3	11.7	8.2	47.3	15.7
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8		4.8	4.8	4.8	4.8	4.8	4.8
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0		2.0	2.9	2.5	2.0	2.9	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	6.8	6.8	7.3	6.8		6.8	7.7	7.3	6.8	7.7	7.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	49.9	41.8	41.8	48.7	41.3		30.8	26.0	41.8	24.2	18.4	34.8
Actuated g/C Ratio	0.48	0.41	0.41	0.47	0.40		0.30	0.25	0.41	0.24	0.18	0.34
v/c Ratio	0.19	0.23	0.11	0.15	0.28		0.27	0.63	0.09	0.06	0.62	0.17
Control Delay	14.8	22.9	0.3	14.7	23.6		26.7	41.7	2.5	24.1	48.8	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	22.9	0.3	14.7	23.6		26.7	41.7	2.5	24.1	48.8	5.4
LOS	B	C	A	B	C		C	D	A	C	D	A
Approach Delay		17.8			22.1			33.4			33.9	
Approach LOS		B			C			C			C	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 102.9
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 25.9
 Intersection Capacity Utilization 56.5%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 18: US 301 & Cortez Blvd



Lanes, Volumes, Timings
3: Cortez Blvd & Main Str

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	1271	15	3	1196	11	19	1	2	15	2	126
Future Volume (vph)	95	1271	15	3	1196	11	19	1	2	15	2	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	300		0	300		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.900			0.852	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1676	0	1770	1587	0
Flt Permitted	0.141			0.179			0.678			0.756		
Satd. Flow (perm)	263	3539	1583	333	3539	1583	1263	1676	0	1408	1587	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			109		2			133	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		862			2594			709			741	
Travel Time (s)		13.1			39.3			16.1			16.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	100	1338	16	3	1259	12	20	1	2	16	2	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	1338	16	3	1259	12	20	3	0	16	135	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pl	NA	Perm	pm+pl	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		

Lanes, Volumes, Timings
3: Cortez Blvd & Main Str

10/28/2022

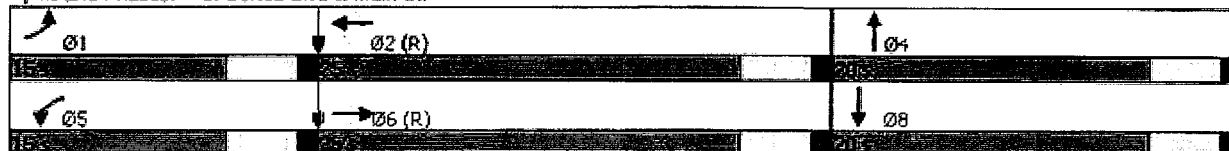
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	20.0	20.0		20.0	20.0	
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	20.0	20.0		20.0	20.0	
Total Split (%)	25.0%	41.7%	41.7%	25.0%	41.7%	41.7%	33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	10.5	20.5	20.5	10.5	20.5	20.5	15.5	15.5		15.5	15.5	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	45.6	44.9	44.9	41.4	37.9	37.9	7.0	7.0		7.0	7.0	
Actuated g/C Ratio	0.76	0.75	0.75	0.69	0.63	0.63	0.12	0.12		0.12	0.12	
v/c Ratio	0.27	0.51	0.01	0.01	0.56	0.01	0.14	0.02		0.10	0.45	
Control Delay	4.6	6.2	0.0	3.0	10.4	0.0	24.8	18.0		23.8	10.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	4.6	6.2	0.0	3.0	10.4	0.0	24.8	18.0		23.8	10.4	
LOS	A	A	A	A	B	A	C	B		C	B	
Approach Delay		6.0			10.3			23.9			11.9	
Approach LOS		A			B			C			B	

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 50 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 8.3
 Intersection Capacity Utilization 66.3%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service C

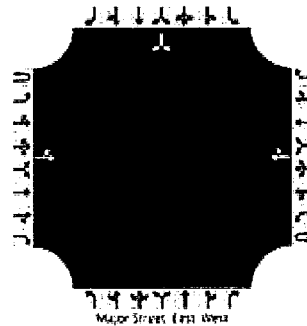
Splits and Phases: 3: Cortez Blvd & Main Str



HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst		Intersection:	
Agency/Co.		Jurisdiction	
Date Performed	9/23/2022	East/West Street	Powerline Rd
Analysis Year	2035	North/South Street	Kettering Rd
Time Analyzed	PM Peak	Peak Hour Factor	0.50
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Bck + Prj and Req Bck Impr		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	10	1	2	3	40	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		154	5				2	12						7		140
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type / Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.3		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		308													294	
Capacity, c (veh/h)		1579													967	
v/c Ratio		0.20													0.30	
95% Queue Length, Q ₉₅ (veh)		0.7													1.3	
Control Delay (s/veh)		7.8													10.3	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)	7.6												10.3			
Approach LOS													B			

HCS7 Two-Way Stop-Control Report

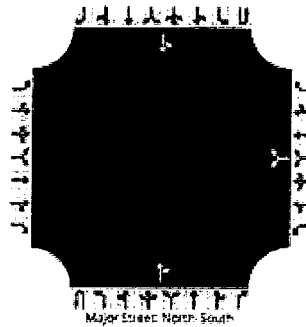
General Information

Analyst	
Agency/Co	
Date Performed	9/23/2022
Analysis Year	2035
Time Analyzed	PM Peak
Intersection Orientation	North-South
Project Description	Bck Plus Proj and Req Bck Impr

Site Information

Intersection	
Jurisdiction	
East/West Street	Powerline Rd
North/South Street	Lockhart Rd
Peak Hour Factor	0.48
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	10	1	2	3	40	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						33		91			18	31		8	17	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.43		6.23							4.13	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.53		3.33							2.23	

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						258									17	
Capacity, c (veh/h)						946									1484	
v/c Ratio						0.27									0.01	
95% Queue Length, Q ₉₅ (veh)						1.1									0.0	
Control Delay (s/veh)						10.2									7.5	
Level of Service (LOS)						B									A	
Approach Delay (s/veh)					10.2								2.4			
Approach LOS					B											

BACKGROUND PLUS PROJECT WITH REQUIRED IMPROVEMENTS FOR PROJECT



LINCKS & ASSOCIATES, INC.

Lanes, Volumes, Timings
2: I-75 NB/I-75 SB & Cortez Blvd

12/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	1385	111	450	1563	304	147	0	959	483	0	362
Future Volume (vph)	182	1385	111	450	1563	304	147	0	959	483	0	362
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	435		0	620		0	0		545	0		650
Storage Lanes	2		0	1		0	3		3	3		2
Taper Length (ft)	50			100			25			25		
Lane Util. Factor	0.97	0.86	0.86	0.97	0.86	0.86	0.94	1.00	0.76	0.94	1.00	0.88
Frt		0.989			0.976				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	6337	0	3433	3254	0	4990	0	3610	4990	0	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	6337	0	3433	3254	0	4990	0	3610	4990	0	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			48				186			369
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1000			840			750			850	
Travel Time (s)		15.2			12.7			17.0			19.3	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	186	1413	113	459	1595	310	150	0	979	493	0	369
Shared Lane Traffic (%)												
Lane Group Flow (vph)	186	1526	0	459	1905	0	150	0	979	493	0	369
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			36			36	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1		1	1		1
Detector Template	Left	Thru		Left	Thru		Left		Right	Left		Right
Leading Detector (ft)	20	100		20	100		20		20	20		20
Trailing Detector (ft)	0	0		0	0		0		0	0		0
Detector 1 Position(ft)	0	0		0	0		0		0	0		0
Detector 1 Size(ft)	20	6		20	6		20		20	20		20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Prot	NA		Prot	NA		Prot	pm+ov	Prot			Perm
Protected Phases	5	2		1	6		3		1	7		
Permitted Phases									3			4

Lanes, Volumes, Timings
2: I-75 NB/I-75 SB & Cortez Blvd

12/09/2022

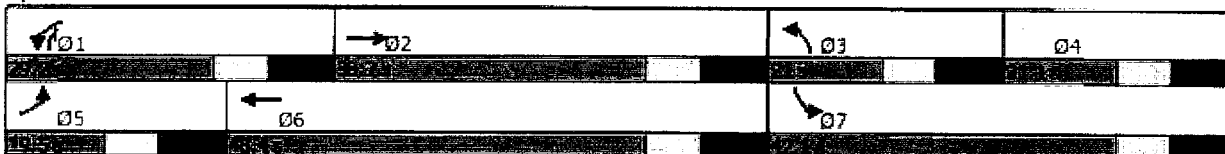
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		3		1	7		4
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0		10.0		7.0	10.0		10.0
Minimum Split (s)	17.9	28.9		17.9	28.9		20.9		17.9	20.9		20.9
Total Split (s)	19.5	38.7		29.2	48.4		21.0		29.2	42.1		21.1
Total Split (%)	17.7%	35.2%		26.5%	44.0%		19.1%		26.5%	38.3%		19.2%
Maximum Green (s)	8.6	27.8		18.3	37.5		10.1		18.3	31.2		10.2
Yellow Time (s)	4.9	4.9		4.9	4.9		4.9		4.9	4.9		4.9
All-Red Time (s)	6.0	6.0		6.0	6.0		6.0		6.0	6.0		6.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Total Lost Time (s)	10.9	10.9		10.9	10.9		10.9		10.9	10.9		10.9
Lead/Lag	Lead	Lag		Lead	Lag		Lead		Lead			Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0		3.0	3.0		3.0
Recall Mode	None	Min		None	Min		None		None	None		None
Act Effct Green (s)	8.5	28.0		18.0	37.5		10.0		28.1	31.0		10.0
Actuated g/C Ratio	0.08	0.26		0.16	0.34		0.09		0.26	0.28		0.09
v/c Ratio	0.70	0.94		0.81	0.88		0.33		0.92	0.35		0.63
Control Delay	63.8	51.7		56.8	38.8		48.9		36.6	32.2		10.1
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Total Delay	63.8	51.7		56.8	38.8		48.9		36.6	32.2		10.1
LOS	E	D		E	D		D		D	C		B
Approach Delay		53.0			42.3			38.2			22.7	
Approach LOS		D			D			D			C	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 109.7
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 41.8
 Intersection Capacity Utilization 75.0%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service D

Splits and Phases: 2: I-75 NB/I-75 SB & Cortez Blvd



Queuing and Blocking Report
Background Plus Project Traffic and Required Project Improvements

12/09/2022

Intersection: 2: I-75 NB/I-75 SB & Cortez Blvd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	TR	L	L	T	T	T	TR
Maximum Queue (ft)	162	188	412	381	385	305	170	175	238	254	228	230
Average Queue (ft)	112	72	323	292	301	169	110	115	159	164	145	134
95th Queue (ft)	188	210	458	431	422	342	182	184	280	284	267	263
Link Distance (ft)			943	943	943	943		749	749	749	749	749
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	435	435					620					
Storage Blk Time (%)			2									
Queuing Penalty (veh)			5									

Intersection: 2: I-75 NB/I-75 SB & Cortez Blvd

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	L	L	R	R	R	T	T	L	L	L
Maximum Queue (ft)	84	90	486	504	505	443	16	50	162	134	173
Average Queue (ft)	57	54	161	359	381	268	0	8	106	72	110
95th Queue (ft)	90	98	526	603	601	577	0	75	168	134	178
Link Distance (ft)	645	645	645				1572	1572	745	745	745
Upstream Blk Time (%)			2	1	0						
Queuing Penalty (veh)			0	0	0						
Storage Bay Dist (ft)				545	545	545					
Storage Blk Time (%)			0	7	5	0					
Queuing Penalty (veh)			1	3	3	0					

HCM Signalized Intersection Capacity Analysis

2: I-75 NB/I-75 SB & Cortez Blvd

12/09/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	1385	111	450	1563	304	147	0	959	483	0	362
Future Volume (vph)	182	1385	111	450	1563	304	147	0	959	483	0	362
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	10.9	10.9		10.9	10.9		10.9		10.9	10.9		10.9
Lane Util. Factor	0.97	0.86		0.97	0.86		0.94		0.76	0.94		0.88
Frt	1.00	0.99		1.00	0.98		1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)	3433	6337		3433	6251		4990		3610	4990		2787
Flt Permitted	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)	3433	6337		3433	6251		4990		3610	4990		2787
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	186	1413	113	459	1595	310	150	0	979	493	0	369
RTOR Reduction (vph)	0	11	0	0	32	0	0	0	139	0	0	335
Lane Group Flow (vph)	186	1515	0	459	1873	0	150	0	840	493	0	34
Turn Type	Prot	NA		Prot	NA		Prot		pm+ov	Prot		Perm
Protected Phases	5	2		1	6		3		1	7		
Permitted Phases									3			4
Actuated Green, G (s)	8.5	28.0		18.0	37.5		10.0		28.0	31.0		10.1
Effective Green, g (s)	8.5	28.0		18.0	37.5		10.0		28.0	31.0		10.1
Actuated g/C Ratio	0.08	0.26		0.16	0.34		0.09		0.26	0.28		0.09
Clearance Time (s)	10.9	10.9		10.9	10.9		10.9		10.9	10.9		10.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	266	1617		563	2136		454		921	1410		256
v/s Ratio Prot	0.05	0.24		0.13	c0.30		0.03		c0.15	c0.10		
v/s Ratio Perm									0.08			0.01
v/c Ratio	0.70	0.94		0.82	0.88		0.33		0.91	0.35		0.13
Uniform Delay, d1	49.4	40.0		44.2	33.9		46.7		39.7	31.3		45.8
Progression Factor	1.00	1.00		1.00	1.00		1.00		1.00	1.00		1.00
Incremental Delay, d2	7.8	10.7		8.9	4.4		0.4		13.1	0.2		0.2
Delay (s)	57.1	50.6		53.1	38.3		47.1		52.8	31.5		46.0
Level of Service	E	D		D	D		D		D	C		D
Approach Delay (s)		51.4			41.2			52.0			37.7	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			45.6	HCM 2000 Level of Service				D				
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			109.7	Sum of lost time (s)				43.6				
Intersection Capacity Utilization			75.0%	ICU Level of Service				D				
Analysis Period (min)			15									
c Critical Lane Group												

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	284	1406	1061	295	1251	37	665	20	352	72	30	31
Future Volume (vph)	284	1406	1061	295	1251	37	665	20	352	72	30	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		500	600		485	300		200	200		0
Storage Lanes	1		1	2		1	2		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.924	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	1863	1583	1770	1721	0
Flt Permitted	0.950			0.950			0.950			0.744		
Satd. Flow (perm)	1770	5085	1583	3433	5085	1583	3433	1863	1583	1386	1721	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			878			217			319		33	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		635			2060			693			832	
Travel Time (s)		9.6			31.2			15.8			18.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	299	1480	1117	311	1317	39	700	21	371	76	32	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	299	1480	1117	311	1317	39	700	21	371	76	65	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8		5	2		6		
Permitted Phases			Free			8			2	6		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	12.0	25.0		12.0	25.0	25.0	12.4	25.4	25.4	25.4	25.4	
Total Split (s)	29.0	48.0		21.0	40.0	40.0	34.8	61.0	61.0	26.2	26.2	
Total Split (%)	22.3%	36.9%		16.2%	31.8%	30.8%	26.8%	46.9%	46.9%	20.2%	20.2%	
Maximum Green (s)	22.0	41.0		14.0	33.0	33.0	27.4	53.6	53.6	18.8	18.8	
Yellow Time (s)	4.9	4.9		4.9	4.9	4.9	3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	2.1	2.1		2.1	2.1	2.1	3.7	3.7	3.7	3.7	3.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0	7.0	7.4	7.4	7.4	7.4	7.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0	7.0		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0			0	0		0	0	0	0	
Act Effct Green (s)	22.0	41.4	123.1	13.7	33.0	33.0	27.2	46.6	46.6	12.0	12.0	
Actuated g/C Ratio	0.18	0.34	1.00	0.11	0.27	0.27	0.22	0.38	0.38	0.10	0.10	
v/c Ratio	0.95	0.87	0.71	0.82	0.97	0.07	0.92	0.03	0.47	0.56	0.33	
Control Delay	89.1	45.3	2.7	71.4	62.3	0.2	66.2	23.6	6.7	68.9	33.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	89.1	45.3	2.7	71.4	62.3	0.2	66.2	23.6	6.7	68.9	33.2	
LOS	F	D	A	E	E	A	E	C	A	E	C	
Approach Delay		33.4			62.5			45.2			52.4	
Approach LOS		C			E			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 123.1

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 44.4

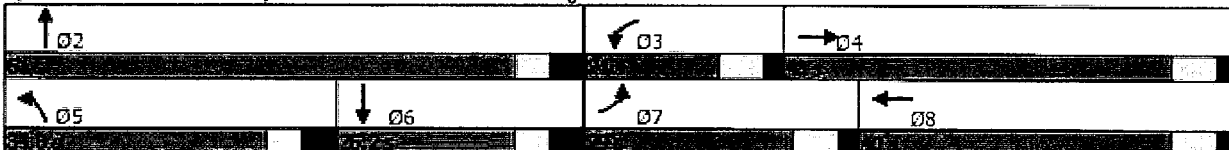
Intersection Capacity Utilization 83.4%

Analysis Period (min) 15

Intersection LOS: D

ICU Level of Service E

Splits and Phases: 23: Project Access A/Sherman Hills Realignment & Cortez Blvd



PERCENT CAPACITY CONSUMED



LINCKS & ASSOCIATES, INC.

TABLE A-1

INTERSECTION PROPORTIONATE SHARE DETERMINATION
(PM PEAK HOUR)

<u>Intersection</u>	<u>Critical Movement</u>	LOS E <u>Lane Group Capacity (1)</u>	<u>New Project Trips</u>
Cortez Blvd and I-75 Ramps	WBT/R	2,136	744
	NBR	921	413
	SBL	<u>1,410</u>	<u>292</u>
		4,467	1,449
		% Consumed	32.44%

FDOT 2022 COST TABLES



LINCKS & ASSOCIATES, INC.

Roadway Cost Per Centerline Mile
Revised June 2022

	Construction Cost From LRE	MOT *	Mobilization *	Subtotal	Scope Contingency (25%)	Total Construction Cost	FE Design (15%)	CEI (15%)	Total Project Cost **
New Construction (2-Lane Roadway) with 5' Paved Shoulders	\$6,515,370	\$651,637	\$716,807	\$7,884,809	\$1,971,202	\$9,856,010	\$1,478,401	\$1,478,401	
New Construction (4-Lane Roadway) with 5' Paved Shoulders	\$10,734,295	\$1,073,430	\$1,180,772	\$12,988,497	\$3,247,124	\$16,235,621	\$2,435,343	\$2,435,343	
New Construction (6-Lane Roadway) with 5' Paved Shoulders	\$13,678,044	\$1,367,804	\$1,504,585	\$16,550,433	\$4,137,608	\$20,688,041	\$3,103,206	\$3,103,206	
Milling and Resurfacing (4-Lane Roadway) with 5' Paved Shoulders	\$1,571,182	\$187,118	\$183,830	\$2,022,130	\$505,533	\$2,527,663	\$379,149	\$379,149	
Milling and Resurfacing (6-Lane Roadway) with 5' Paved Shoulders	\$2,364,092	\$236,408	\$280,050	\$2,880,551	\$715,138	\$3,595,689	\$539,353	\$539,353	
Add Lanes (2 to 4 Lanes) with 5' Paved Shoulders (includes milling and resurfacing of existing pavement)	\$7,623,562	\$762,356	\$838,582	\$9,224,510	\$2,306,127	\$11,530,637	\$1,729,596	\$1,729,596	
Add Lanes (4 to 6 Lanes) with 5' Paved Shoulders (includes milling and resurfacing of existing pavement)	\$8,044,797	\$804,480	\$884,828	\$9,734,204	\$2,433,551	\$12,167,755	\$1,825,163	\$1,825,163	
Add Lanes (4 to 8 Lanes) with 5' Paved Shoulders (includes milling and resurfacing of existing pavement)	\$11,222,926	\$1,122,293	\$1,234,522	\$13,579,740	\$3,394,925	\$16,974,675	\$2,546,201	\$2,546,201	
Add Lanes (6 to 8 Lanes) with 5' Paved Shoulders (includes milling and resurfacing of existing pavement)	\$10,207,327	\$1,020,733	\$1,122,806	\$12,350,865	\$3,087,716	\$15,438,582	\$2,315,787	\$2,315,787	
Add 1 Through Lane on Inside (To Existing) with 5' Paved Shoulders	\$1,956,252	\$195,625	\$215,188	\$2,367,065	\$591,766	\$2,958,831	\$443,825	\$443,825	
Add 1 Through Lane on Outside (To Existing) with 5' Paved Shoulders	\$2,961,463	\$296,146	\$325,751	\$3,583,370	\$895,842	\$4,479,212	\$671,882	\$671,882	
Add 300' Exclusive Left Turn Lane	\$91,304	\$13,696	\$15,750	\$120,750	\$30,187	\$150,937	\$22,641	\$22,641	
Add 300' Exclusive Right Turn Lane	\$237,181	\$35,577	\$40,914	\$313,671	\$78,418	\$392,089	\$58,813	\$58,813	
New Construction (2-Lane Roadway) with 5' Sidewalk, and Curb & Gutter	\$10,019,456	\$1,001,946	\$1,102,140	\$12,123,542	\$3,030,885	\$15,154,427	\$2,273,164	\$2,273,164	
New Construction (4-Lane Roadway) with 5' Sidewalk, and Curb & Gutter	\$14,097,157	\$1,409,716	\$1,550,067	\$17,057,959	\$4,264,399	\$21,321,049	\$3,198,292	\$3,198,292	
New Construction (6-Lane Roadway) with 5' Sidewalk, and Curb & Gutter	\$17,146,353	\$1,714,635	\$1,886,099	\$20,747,087	\$5,186,772	\$25,933,859	\$3,890,079	\$3,890,079	
Milling and Resurfacing (4-Lane Roadway) with 5' Sidewalk, and Curb & Gutter	\$1,739,197	\$173,920	\$191,312	\$2,104,429	\$526,107	\$2,630,536	\$394,580	\$394,580	
Milling and Resurfacing (6-Lane Roadway) with 5' Sidewalk, and Curb & Gutter	\$2,467,617	\$246,762	\$271,438	\$2,985,816	\$746,454	\$3,732,270	\$559,841	\$559,841	
Add Lanes (2 to 4 Lanes) with 5' Sidewalk, and Curb & Gutter (includes milling and resurfacing existing pavement)	\$9,749,449	\$974,945	\$1,072,439	\$11,796,833	\$2,949,208	\$14,746,041	\$2,211,906	\$2,211,906	
Add Lanes (4 to 6 Lanes) with 5' Sidewalk, and Curb & Gutter (includes milling and resurfacing existing pavement)	\$10,589,670	\$1,058,967	\$1,164,864	\$12,813,501	\$3,203,375	\$16,016,876	\$2,402,531	\$2,402,531	
Add Lanes (4 to 8 Lanes) with 5' Sidewalk, and Curb & Gutter (includes milling and resurfacing existing pavement)	\$14,490,863	\$1,449,086	\$1,593,995	\$17,533,945	\$4,383,486	\$21,917,431	\$3,287,615	\$3,287,615	
Add Lanes (6 to 8 Lanes) with 5' Sidewalk, and Curb & Gutter (includes milling and resurfacing existing pavement)	\$12,430,084	\$1,243,006	\$1,367,307	\$15,040,378	\$3,760,094	\$18,800,472	\$2,820,071	\$2,820,071	
Add 1 Through Lane on Inside (To Existing) with 5' Sidewalk, and Curb & Gutter	\$1,810,326	\$181,033	\$199,136	\$2,190,495	\$547,624	\$2,738,118	\$410,718	\$410,718	
Add 1 Through Lane on Outside (To Existing) with 5' Sidewalk, and Curb & Gutter	\$5,039,089	\$503,907	\$554,297	\$6,097,272	\$1,524,318	\$7,621,590	\$1,143,238	\$1,143,238	
Add 300' Exclusive Left Turn Lane	\$115,208	\$17,281	\$19,873	\$152,363	\$38,091	\$190,454	\$28,568	\$28,568	
Add 300' Exclusive Right Turn Lane	\$284,344	\$42,652	\$49,049	\$376,045	\$94,011	\$470,056	\$70,508	\$70,508	

* A 15% MOT and Mobilization factor was used for exclusive left and right turn lanes. A 10% factor was used for all other figures.

** Total cost shown is derived from a standard typical section. Costs will need to be adjusted to account for signals, bridges, or any additional item not deemed typical.

Note:

1. Estimates were derived from FDOT LRE system
2. These figures exclude costs for intersections/interchanges, improvements to cross streets, bridges over 20', right-of-way, landscaping, ITS, and traffic signals.
3. The figures are based on market costs for Hillsborough County.
4. Costs shown are present day costs.
5. The costs developed for this report are not project-specific and should be used for preliminary estimating purposes only.

Other Roadway Related Costs
Revised June 2022

	Construction Cost From LRE	MOT *	Mobilization (15%)	Subtotal	Scope Contingency (25%)	Total Construction Cost	PE Design (15%)	CEI (15%)	Total Project Cost
2-Lane Roadway Intersecting 2-Lane Roadway	\$272,124	\$40,619	\$46,941	\$359,684	\$89,971	\$449,655	\$67,478	\$67,478	
4-Lane Roadway Intersecting 4-Lane Roadway	\$350,443	\$52,566	\$60,451	\$463,451	\$115,865	\$579,326	\$86,899	\$86,899	
6-Lane Roadway Intersecting 6-Lane Roadway	\$403,461	\$60,519	\$69,597	\$533,578	\$133,394	\$666,972	\$100,046	\$100,046	
Sidewalks Per Mile (5' Width - 1 Side)	\$162,624	\$8,131	\$25,613	\$196,368	\$49,092	\$245,460	\$36,819	\$36,819	
Sidewalks Per Mile (5' Width - 1 Side)	\$185,149	\$9,757	\$30,736	\$235,642	\$58,911	\$294,553	\$44,183	\$44,183	
Multi-Use Trail Per Mile (12' Width - 1 Side)	\$362,009	\$19,100	\$60,166	\$441,276	\$115,319	\$578,595	\$86,489	\$86,489	
1 Acre Pond Sco (6' Depth)	\$505,219	\$25,261	\$79,572	\$610,052	\$152,513	\$762,565	\$114,385	\$114,385	
Convert 14' Center Turn Lane to 14' Raised Median (Per Mile)	\$467,130	\$70,069	\$80,580	\$617,779	\$154,445	\$772,224	\$115,834	\$115,834	
Widen 1-Leg of Existing Rural 2-Lane Cross Street to Accommodate 2 Receiving Lanes, Dual Left Turn Lanes, and Exclusive Right Turn Lane (Approximate Length of 0.25 Miles)	\$2,036,325	\$350,449	\$403,016	\$3,089,790	\$772,447	\$3,862,237	\$579,336	\$579,336	

* A 15% MOT factor was used for Traffic Signals, Median Restriping, and Cross Street Improvements. A 5% factor was used for all other figures.

**The cost of traffic signalization assumes the installation of mast arms on all four legs of an intersection. To obtain the cost of signalizing a four-lane roadway intersecting a two-lane roadway, divide the signal cost of a four-lane roadway by two and add this figure to the signal cost of the two-lane roadway divided by two.

Notes:

1. Estimates were derived from FDOT LRE system.
2. The figures are based on market costs for Hillsborough County.
3. Costs shown are present day costs.
4. The costs developed for this report are not site-specific and should be used for preliminary estimating purposes only.

Interchange Cost
Revised June 2022

	Construction Cost From LRE	MOT (10%)	Mobilization (10%)	Subtotal	Scope Contingency (25%)	Total Construction Cost	PE Design (15%)	CEI (15%)	Subtotal Project Cost
Single Point Urban Interchange (SPUI)	\$ 34,143,642.60	\$3,414,364	\$3,755,801	\$41,313,808	\$10,328,452	\$51,642,260	\$7,746,339	\$7,746,339	

Note:

1. Cost was derived from an LRE estimate to modify the existing diamond interchange at I-76/SR 94 to a single point urban interchange.
2. Cost shown is for construction only. Does not include Design, CEI, and right-of-way.

FDOT INFLATION FACTORS



LINCKS & ASSOCIATES, INC.



FLORIDA DEPARTMENT OF TRANSPORTATION

TRANSPORTATION COSTS REPORTS

Work Program Highway Construction Cost Inflation Factors

Fiscal Year	Inflation Factor	PDC Multiplier
2022	Base	1.000
2023	2.7%	1.027
2024	2.8%	1.056
2025	2.9%	1.086
2026	3.0%	1.119
2027	3.1%	1.154
2028	3.2%	1.191
2029	3.3%	1.230
2030	3.3%	1.270
2031	3.3%	1.312
2032	3.3%	1.356
2033	3.3%	1.400
2034	3.3%	1.447
2035	3.3%	1.494
2036	3.3%	1.544
2037	3.3%	1.595
2038	3.3%	1.647
2039	3.3%	1.702
2040	3.3%	1.758
2041	3.3%	1.816
2042	3.3%	1.876
2043	3.3%	1.938
2044	3.3%	2.002
2045	3.3%	2.068
2046	3.3%	2.136
2047	3.3%	2.206
2048	3.3%	2.279
2049	3.3%	2.354
2050	3.3%	2.432
2051	3.3%	2.512
2052	3.3%	2.595
2053	3.3%	2.681
2054	3.3%	2.769
2055	3.3%	2.861
2056	3.3%	2.955
2057	3.3%	3.053
2058	3.3%	3.153
2059	3.3%	3.257

IMPROVEMENT COST



LINCKS & ASSOCIATES, INC.

TABLE A-2
IMPROVEMENT COST

Cortez Blvd and I-75 Ramps

NBR

$$600' (a) / 300 \times \$509,716 = \$1,019,432$$

(a) Queue Storage: SimTraffic 603' Use 600'

Total Length: 600'

EBT

$$\$9,908,067 \times 850'(a)/5,280' = \$1,595,049$$

(a) length of the additional lane from SB on ramp to NB off ramp

WBT

$$\$9,908,067 \times 875'(a)/5,280' = \$1,641,962$$

(a) length of the additional lane from NB on ramp to SB off ramp

$$\text{Total Cost} = \$1,019,432 + 1,595,049 + 1,641,962 = \$4,256,443$$

Source: FDOT Roadway Cost per center mile, Revised June, 2022.

EXHIBIT F

Additional Roadway Pipeline Projects/Proportionate Share Improvements