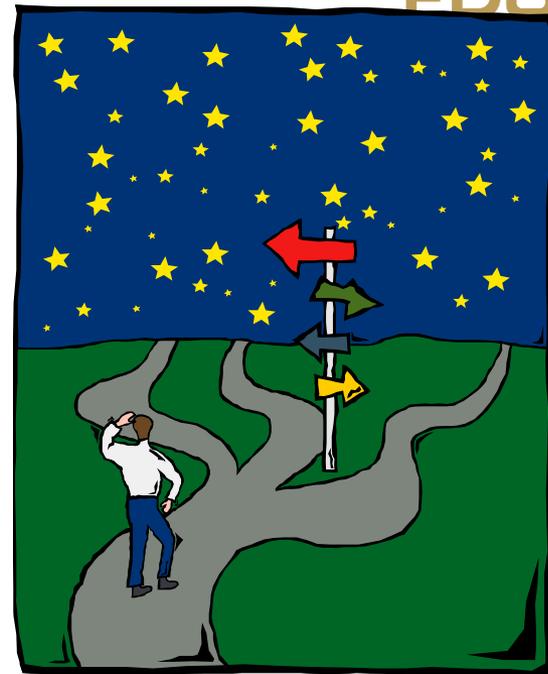


PD&E Project Management



Presented by:

Catherine Bradley

October 2015



AGENDA

- ◆ PD&E Scope of Service
- ◆ Alternatives to be Evaluated
- ◆ Development of Alternatives
- ◆ Documentation

PREPARE FOR PD&E SCOPE

- ◆ Review Final Programming Screen Summary Report to Identify:
 - Project Purpose and Need
 - Engineering Required
 - Environmental Studies Required
 - Permit issues/Types

PREPARE FOR PD&E SCOPE

◆ Field Review

- Social Environment - Land Use, Community
 - Cultural Environment — Native American site, historic properties
- Natural Environment - Wetlands, Species, Conservation, Farmlands
- Physical Environment — Noise receptors, Contamination
- Engineering — Pavement condition, typical section features, drainage, transit, railroad, utilities, structures

Field Reviews



Prepare Scope of Services and Estimate Staffhours

- ◆ Standard Scope of Work
 - Public Involvement
 - Engineering
 - Environmental
 - Miscellaneous
- ◆ <http://www.dot.state.fl.us/projectmanagementoffice/Scope/default.shtm>

PREPARE SCOPE OF SERVICES AND ESTIMATE STAFFHOURS

◆ Public Involvement

- Determine number and frequency of meetings:
 - ★ Kick-off meeting(s)
 - ★ Alternative public meeting(s)
 - ★ Public hearing
- Determine need for other outreach methods and/or techniques:
 - ★ Newsletters
 - ★ Fact sheets
 - ★ Website

PREPARE SCOPE OF SERVICES AND ESTIMATE STAFFHOURS

- ◆ Engineering Analysis and Report
 - Survey and Geotechnical Needs
 - Traffic
 - Safety
 - Railroads/Utilities
 - Needs/Transportation Plans
 - Existing Roadway Analysis
 - Identify Construction Segments
 - Structures
 - Drainage

PREPARE SCOPE OF SERVICES AND ESTIMATE STAFFHOURS

- ◆ Engineering Analysis and Report
 - Concept Plans
 - Typical Section Package
 - Design Exceptions
 - Multimodal/Park and ride
 - Maintenance of Traffic
 - Matrix
 - Value Engineering/Risk Management
 - Cost Estimates (construction and ROW)
 - Other

PREPARE SCOPE OF SERVICES AND ESTIMATE STAFFHOURS

- ◆ Environmental Analysis and Report
 - Sociocultural Effects
 - Relocation Potential
 - Cultural Resources
 - Section 4(f)
 - Natural Resources
 - Physical Effects
 - Special Agency Coordination Required

ALTERNATIVES TO BE EVALUATED

- ◆ Based on project purpose and need identify alternatives
 - No-Action alternative
 - Transportation Systems Management and Operations (TSM&O Strategies)
 - Multi-Modal Alternatives
 - Build Alternatives
- ◆ Alternatives evaluated must meet purpose and need

NO-ACTION ALTERNATIVE

- ◆ Describe the beneficial and adverse effects of doing no improvements
- ◆ Describe how the No-Action alternative addresses (or doesn't address) the need
- ◆ **ALWAYS** carry the No-Action Alternative through the entire study as a baseline of comparison

TRANSPORTATION SYSTEMS MANAGEMENT and OPERATIONS (TSM&O) ALTERNATIVE

- ◆ An alternative which optimizes the performance and utilization of existing infrastructure.
 - Managed Lanes
 - Conversion to Toll Facility
 - Operational Improvements
 - Multi-modal improvements
- ◆ May have been addressed in a Traffic Operations Study

BUILD ALTERNATIVES

- ◆ Meet the “Need” identified
 - Capacity- widening?
 - New Corridor
 - Interchange/Intersection - Operations
 - Safety
- ◆ Feasible-Can it be built?
- ◆ ACE Process
- ◆ Complete Streets, Policy Number 000-650-002

DEVELOPMENT OF ALTERNATIVES

◆ Data Collection

- Survey
- Traffic
- Existing Conditions

◆ Establish Engineering Controls

- Design Criteria

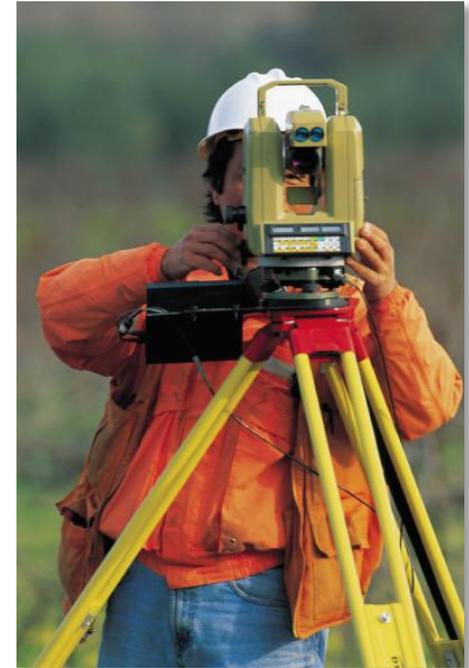
◆ Preliminary Engineering Analysis

- Design traffic
- Horizontal alignment/Vertical alignment in special areas (check vertical clearance to bridges)
- Drainage
- Design exceptions and variance



SURVEY

- ◆ **Coordinate with Survey Department**
- ◆ **Initial survey work (at beginning of project)**
 - Base line
 - Roadway Center line
- ◆ **Save some survey time for later issues**
 - Pond borings
 - Side streets
- ◆ **Level of survey project dependent**
 - Subsurface utility exploration
 - Level of Engineering in PD&E



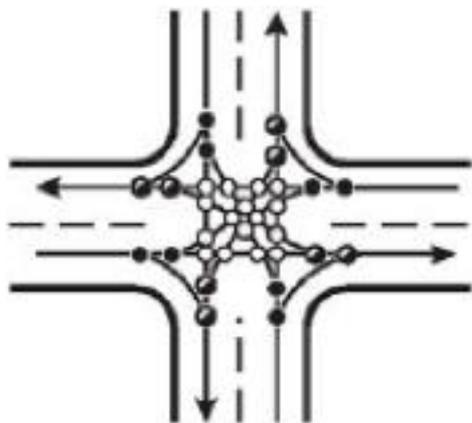
PROJECT TRAFFIC ANALYSIS

- ◆ **FDOT Project Traffic Forecasting No.: 525-030-120**
- ◆ **Design Traffic Technical Memorandum**
 - Documents Traffic volumes that will be addressed by conceptual alternatives
- ◆ **Addresses Opening, Interim and Design Years**
 - AADT and Design Hour
 - LOS
 - Year LOS hit “F”
- ◆ **Examines Multi-Modal**
 - Bus, Rail, Ports ...
- ◆ **Pedestrian/Bicycle Counts**
- ◆ **Interchange Design Traffic**

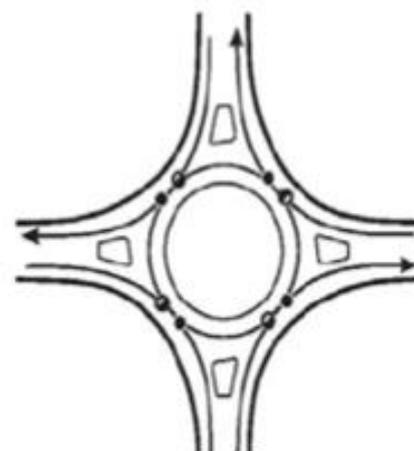


INTERSECTIONS

- ◆ ROADWAY DESIGN BULLETIN 15-07
 Roundabouts - A roundabout alternative must be evaluated on new construction and reconstruction projects. (guidance is available in the Intersection Design Guide)



Regular "4-leg" intersection
 With 56 potential points of conflict



Roundabout
 With 12 potential points of conflict

DESIGN CRITERIA

- ◆ **Establish controls and standards for design**
 - Functional Classification
 - Design Speed
 - Access Classification
 - Season High Water
 - Clear Zones
 - Shoulder / Median / Lane Width
 - Grades
 - Side Slopes
 - Minimum Horizontal and Vertical Clearance
 - Superelevation
 - Sight Distance

- ◆ **Context Sensitive Solution, Policy Number 000-650-002**

CONTEXT SENSITIVE SOLUTIONS/ COMPLETE STREETS

Topic No.: 000-650-002

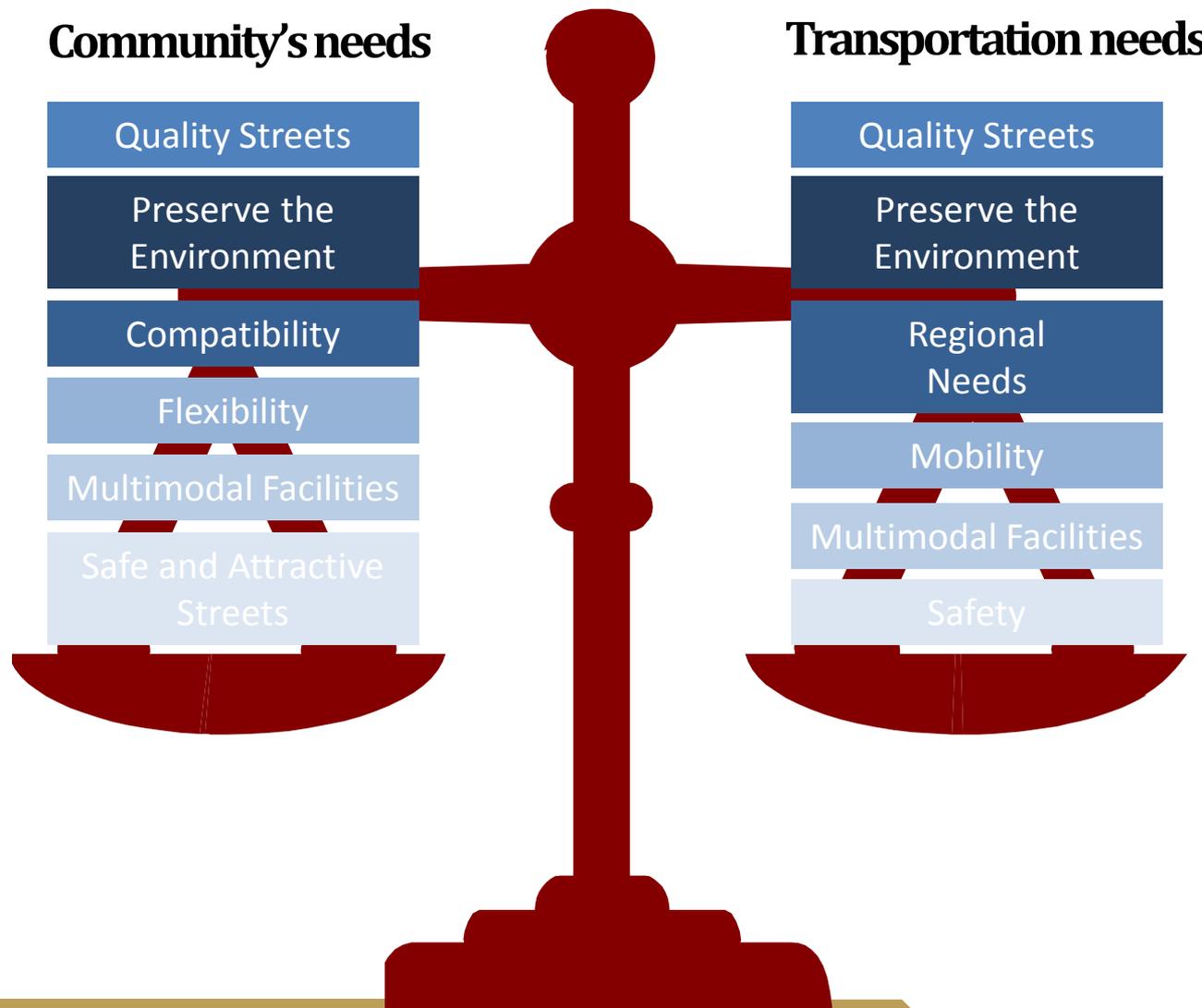
Context Sensitive Solution (CSS)

It is the policy of FDOT to use a CSS approach on transportation projects.

Topic No.: 000-625-017

Complete Streets

This **Complete Streets Policy** will be integrated into the Department's internal manuals, guidelines and related documents governing the planning, design, construction and operation of transportation facilities.



THIS APPROACH SEEKS TO BALANCE SAFETY AND MOBILITY WITH LOCAL PRIORITIES

THINKING BEYOND THE PAVEMENT

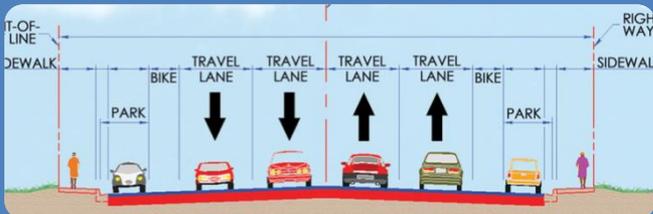


ON-STREET BICYCLE LANES



CURB EXTENSIONS

- IMPROVES VISIBILITY
- SHORTENS PEDESTRIAN CROSSING DISTANCE



TRAFFIC CALMING

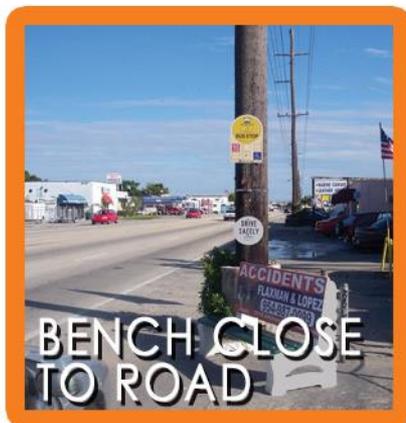
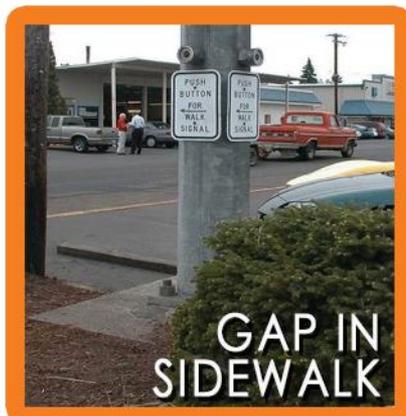
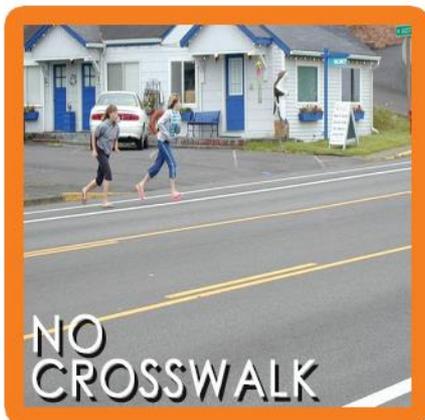
- IN CERTAIN AREAS, NARROWING TRAVEL LANES MAY BE APPROPRIATE



Shared Use Path

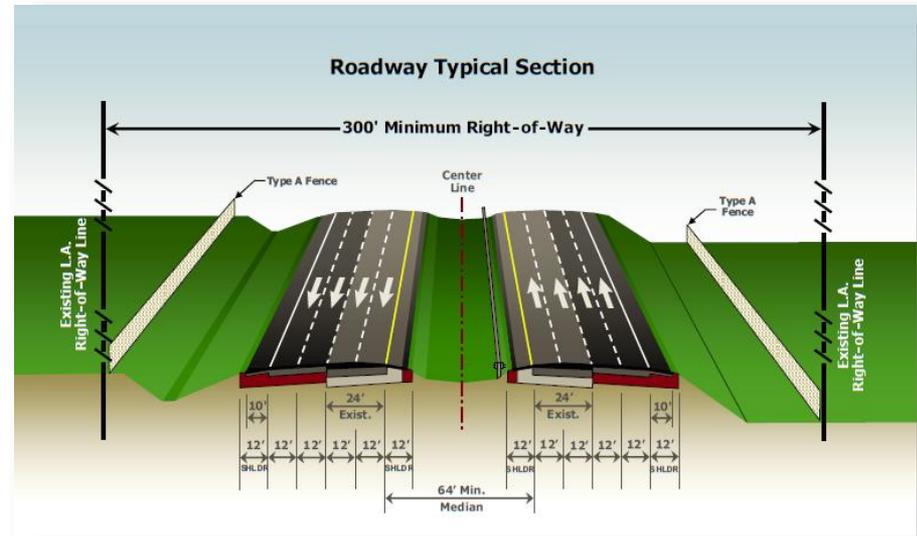
- USED BY PEDESTRIANS, BICYCLISTS, EQUESTRIAN

THIS IS NOT CSS



TYPICAL SECTIONS

- ◆ Functional Classification
- ◆ Traffic
- ◆ Design Speed
- ◆ Design Controls
- ◆ Reduced Lane Widths



VARIATIONS AND EXCEPTIONS

Chapter 23 Plans Preparation Manual

◆ 13 Design Elements

◆ Design Variations – Below PPM Criteria but an exception not needed

- Approval required by District Design Engineer

◆ Exceptions – Below PPM and AASHTO criteria

- Approval required by District Design Engineer

◆ Design Speed Variation and Exception on SIS Facility

- Approval required by Chief Engineer following review by State Transportation Planner

◆ Review approvals required by others in Chapter 23 PPM

- FHWA Divisions Administrator
- State Roadway Design Engineer
- District / State Structures Design Engineer

◆ Identify or process in PD&E – check scope

ONCE ALTERNATIVES ARE DEVELOPED...

◆ Examine Engineering Impacts

- Drainage
- Structures
- Utilities/Railroads
- Safety
- Right of way



◆ Examine Environmental Impacts

- Natural
- Socio-Cultural
- Physical



DRAINAGE ANALYSIS and REPORTS

- ◆ Potential drainage solutions are developed
- ◆ Meet with Water Management District and Local Authorities
 - Environmental Look Around (ELA)
 - *Adjacent property stormwater management systems*
 - Determine Criteria for treatment
- ◆ Pond Siting Report (PSR)
- ◆ Location Hydraulic Report (LHR)
- ◆ Water Quality Impact Evaluation (WQIE)

STRUCTURES

- ◆ Coordination with District Structures Engineer
- ◆ Typical Sections
- ◆ Over Water
 - Minimum Height
 - Piers
- ◆ New/Widening
- ◆ Piers
- ◆ Maintenance of Traffic



UTILITIES/RAILROADS

◆ Utilities

- Coordination with District Utility Office
- Existing
 - Relocations
- Proposed New

◆ Railroads

- Coordination with District Rail Office
- Crossings

Safety

- ◆ Identify High Crash Sites
- ◆ Crash Reduction Quantification
 - One Method in the toolbox is HSM
 - Nominal vs Substantive Safety
 - HSM provides a predictive method to estimate expected crash frequency for alternatives
 - Quantifies and evaluates the safety effectiveness of a proposed countermeasure/alternative
 - Benefit Cost Analysis for safety
 - Matrix

ENVIRONMENTAL IMPACTS

- ◆ Natural
 - Wetlands
 - Wildlife and Habitat
- ◆ Sociocultural
 - Permit Features
 - Recreational (4f)
 - Archaeological
 - Social
- ◆ Physical
 - Noise
 - Contamination
 - Air Quality

RIGHT OF WAY

- ◆ Coordination with District ROW Office
- ◆ Existing
- ◆ Proposed
- ◆ Relocation
- ◆ Costs
- ◆ Pond Sites

ALTERNATIVES MATRIX

◆ Information on Matrix

- Constructability
- Construction Cost
- Engineering Cost
- ROW Costs
- Bicycle Pedestrian Facilities
- Temporary Traffic Control
- Environmental Impacts
- Social and Economic Impacts
- Operational Analysis
- Safety

ALTERNATIVES MATRIX

Wetland Area (acres impacted)	0	20.93 acres- direct 34.25 acres-secondary
Upland Areas (acres impacted)	0	19.01
Aquatic Preserves/Outstanding Florida Waters Impacted)	None	None
Wild and Scenic Rivers (Impacted)	None	None
Floodplains (Acres Impacted)	None	2.11 acres
Threatened and Endangered Species Involvement (Impacted)	None	6
Farmlands (Acres Impacted)	None	None
Noise (Impacted)	None	1
Potential Contamination Sites (Impacted by Pond and Road Construction)		
Number of High Risk Contamination Sites	None	10
Number of Medium Risk Contamination Sites	None	1
Potential Utility Relocations	None	12
Traffic Service, Operations, Access	Poor (LOS F)	Average (LOS C in Design Year)
Constructability (high, moderate, low)**	N/A	Moderate
Preliminary Engineering	\$0	\$1,904,128.00
Design	\$0	\$2,489,258.34
Right-of-Way Acquisition	\$0	\$34,704,076.80
Construction	\$0	\$37,420,933.50
CEI	\$0	\$3,362,884.84
Total Project Costs	\$0	\$79,881,281.48

REFINE ALTERNATIVES

- ◆ Alternatives Workshop
- ◆ Value Engineering
- ◆ Make adjustments to alternatives as necessary
- ◆ One alternative will begin to become the “Recommended Alternative”

RECOMMENDED ALTERNATIVE

- ◆ **Public Hearing**
- ◆ **Finalize Recommended Alternative**
 - Respond / address hearing comments
 - Transmit final documents for approval
- ◆ **Recommended Build vs. No Action**
- ◆ **Final Concept Plans**
- ◆ **Typical Section Package**

TYPICAL SECTION PACKAGE

Signed and Sealed

PROJECT IDENTIFICATION	
FINANCIAL PROJECT ID	49344-2-22-01 COUNTY (SECTION) 9060 & 89070
PROJECT DESCRIPTION	S.R. 710 FROM U.S. 441 TO C.R. 714
PROJECT CONTROLS	
FUNCTIONAL CLASSIFICATION	HIGHWAY SYSTEM
(X) RURAL (X) URBAN (1) FREEWAY/EXPWY. (1) MAJOR COLL. (2) PRINCIPAL ART. (1) MINOR COLL. (1) MINOR ART. (1) LOCAL	YES NO (1) (X) NATIONAL HIGHWAY SYSTEM (1) (X) FLORIDA INTRASTATE HIGHWAY SYSTEM (X) (1) STRATEGIC INTERMODAL SYSTEM (X) (1) STATE HIGHWAY SYSTEM (1) (X) OFF STATE HIGHWAY SYSTEM
ACCESS CLASSIFICATION	TRAFFIC
(1) 1 - FREEWAY (X) 2 - RESTRICTIVE w/Service Roads (X) 3 - RESTRICTIVE w/660 FT. Connection Spacing (1) 4 - NON-RESTRICTIVE w/2640 FT. Signal Spacing (1) 5 - RESTRICTIVE w/660 FT. Connection Spacing (1) 6 - NON-RESTRICTIVE w/1320 FT. Signal Spacing (1) 7 - BOTH MEDIAN TYPES	YEAR AADT CURRENT 2008 15,000 OPENING 2020 15,000 DESIGN 2040 26,500 TYPICAL SECTION # 1-1 DESIGN SPEED 50 MPH POSTED SPEED 50 MPH TYPICAL SECTION # 4-4 DESIGN SPEED 65 MPH POSTED SPEED 65 MPH DISTRIBUTION K 10% D 55% T ₂₀ 20%
CRITERIA	DESIGN SPEED APPROVALS
(X) NEW CONSTRUCTION / RECONSTRUCTION (1) I/95 INTERSTATE / FREEWAY (1) RRR NON-INTERSTATE / FREEWAY (1) TOLC / NEW CONSTRUCTION / RECONSTRUCTION (1) TOLC / RRR (1) MAINLINE OF I/95/75/10/1/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000	2-1-11 B.A. MASING DISTRICT DESIGN ENGINEER DATE 02/11/11 DISTRICT TRAFFIC OPERATIONS ENGINEER DATE
LIST ANY POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION ELEMENTS:	
LIST MAJOR STRUCTURES LOCATION/DESCRIPTION - REQUIRING INDEPENDENT STRUCTURE DESIGN: BRIDGE NO. 90005 OVER TAYLOR CREEK (MP. 0.000) BRIDGE CULVERT NO. 90005 OVER HEARY CREEK (MP. 7.987) BRIDGE NO. 90005 OVER INTERCEPTOR CREEK (MP. 1.075) BRIDGE CULVERT NO. 90025 OVER LETTUCE CREEK (MP. 9.045) BRIDGE NO. 90036 OVER MOSQUITO CREEK (MP. 1.474) BRIDGE NO. 90087 OVER HUBBARD SLOUGH (MP. 4.624)	
LIST MAJOR UTILITIES WITHIN PROJECT CORRIDOR: GULFSTREAM NATURAL GAS SYSTEMS CENTURY LINK FLORIDA GAS TRANSMISSION LEVEL 3 COMMUNICATIONS FLORIDA POWER AND LIGHT VERIZON (AC)	
LIST OTHER INFORMATION PERTINENT TO DESIGN OF PROJECT: FUNCTIONAL CLASSIFICATION: TYPICAL SECTION # 1-1 - URBAN TYPICAL SECTION # 4-4 - RURAL ACCESS CLASSIFICATION: CLASS 3 - US 94 TO TAYLOR CREEK BRIDGE CLASS 3 - SR 710 TO TAYLOR CREEK BRIDGE TO SR 710 CLASS 3 - SR 710 TO CR 714	

PROJECT IDENTIFICATION	
FINANCIAL PROJECT ID	49344-2-22-01 FEDERAL AID PROJECT NO. N/A COUNTY NAME OKEECHOBEE & MARTIN
SECTION NO.	9060 & 89070 ROAD DESIGNATION S.R. 710 LIMITS/MILEPOST MP 0.000 TO MP 9.922 MP 0.000 TO MP 0.477
PROJECT DESCRIPTION	S.R. 710 FROM U.S. 441 TO C.R. 714
PROPOSED ROADWAY TYPICAL SECTION	
<p>TYPICAL SECTION #4 DESIGN SPEED = 65 MPH STA. 1184+70 TO STA. 1410+04</p>	
<p>APPROVED BY <i>Chris Piazza</i> CHRIS PIAZZA, P.E. 00304 District Project Development Engineer Date 2/1/11</p>	<p>CONCURRENCE <i>L.K. Nandan</i> L.K. NANDAN, P.E. District Traffic Operations Engineer Date 02/11/11</p>
<p>CONCURRENCE <i>B.A. Masing</i> B.A. MASING, P.E. FDOT District Design Engineer Date 2-1-11</p>	

DOCUMENTATION

◆ Documentation

- Environmental Document
 - **Type 2 CE:** Block 2b
 - **EA:** Alternatives Considered
 - **EIS:** Alternatives Including Proposed Action
 - **SEIR:** Block 2b
- Environmental Technical Studies
- Preliminary Engineering Report
- Engineering Technical Reports

PRELIMINARY ENGINEERING REPORT

- ◆ **Purpose is to provide technical engineering information**
 - Supplements information provided in the Environmental Document
 - Supports the decisions made related to the project alternatives
 - Describes the Preferred Alternative
- ◆ **Signed and sealed by a Florida Registered Professional Engineer**

PRELIMINARY ENGINEERING REPORT

OUTLINE

- ◆ 1. Cover Page
- ◆ 2. Summary of Project
 - Commitments and Recommendations
 - Description of Proposed Action
- ◆ 3. Existing Conditions
- ◆ 4. Planning Phase/Corridor Analysis
- ◆ 5. Project Design Standards

PRELIMINARY ENGINEERING REPORT

OUTLINE

- ◆ **6. Alternative Alignment Analysis**
 - a. No - Build Alternative
 - b. Transportation Systems Management and Operations
 - c. Multi-Modal Alternatives
 - d. Alternative Evaluation (for each alternative)
 - e. Evaluation Matrix – compare all major impacts
 - f. Preferred Alternative - explain alternative chosen by and the rationale
- ◆ **7. Design Details of Preferred Alternative** (including Typical Section Package)
- ◆ **8. Conceptual Design Plans**
- ◆ **9. List of Technical Reports Completed for the Project**

Questions



FOR MORE INFORMATION

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