

APPENDIX F
AGENCY CORRESPONDENCE

31823722

January 9, 2004

MEMORANDUM

TO: Project File

FROM: Kate Wolfe

SUBJECT: Report of Wilmington Housing Authority Meeting, January 9, 2004, 3:30 P.M. City Hall, Wilmington, North Carolina. Independence Boulevard Extension Project, New Hanover County. TIP Project No. U-4434.

ATTENDEES

Joe Blair, NCDOT

Allen Pope, NCDOT

Mark Tinkler, City of Wilmington

John Hatton, Housing and Economic Opportunities, Inc.

Chuck Holden, Housing and Economic Opportunities, Inc.

Dewey Harris

Richard Kirk

Ben Quattlebaum

Emily Swanenger

Hugh Caldwell, City of Wilmington

David Griffin, URS

Kate Wolfe, URS

URS attended a portion of the Wilmington Housing Authority Meeting. The bullet points that follow are not official meeting notes but are instead a summary of the portions of the meeting that were relevant to the Independence Boulevard Extension Project.

- The park has plans to acquire additional property for ball fields at the north end of site.
- Wilmington Housing Authority (WHA) has conceptual plans for housing development.
- WHA has acquired 49 acres of the Winfield-Smith property east of 30th Street. They need to accommodate future housing and to relocate some communities in order to revitalize other properties.
- WHA has assumed that the roadway extension will be located along the right side of Montgomery Avenue.
- Existing properties may need access from 30th Street if Hurst is cut-off by the roadway extension.

- Flyovers and cloverleaves at Princess Place are potential elements of the extension project.
- WHA assumed that the extension project would have a 100-foot right-of-way (ROW); however, the proposal showed the potential for a 150-foot ROW. WHA said that they should be able to accommodate a 150-foot ROW if it is located on the east side of the property.
- WHA wants to know how much additional space would be needed if a cloverleaf is constructed over the railroad crossing north of Princess Place.
- WHA plans to start building in 18 to 24 months. They hoped to have the property purchased by the end of the day on January 9, 2004.
- This land would take care of 70 percent of the Hope 6 requirements assuming a 150-foot corridor for the roadway extension project.
- The property has a 30-foot easement on the east side so WHA is hoping that the 150-foot corridor for the roadway extension project would include this easement.
- There are also utilities in this area.
- The cloverleaf would span over the railroad tracks but could have access under the cloverleaf, if necessary.
- There would be ramps and loops over the railroad tracks that would impact the SW and NE quadrants of property.
- A determination regarding if access is important at Princess Place needs to be determined.
- There has already been some environmental work on this property because there was talk of excavating sand in that area many years ago. The wetlands areas are located north of the planned housing development. The roadway extension project will likely bridge these wetlands.
- The WHA is using Boney Architects and HDR out of Charlotte as their community planning company.
- WHA plans for 135 units under the present zoning conditions.
- Dewey Harris said that he could help with talking to neighborhood associations, churches, and local TV channels to get the word out regarding workshops and public hearings for the roadway project.
- Hurst will likely dead end at the roadway extension. However, one of the roadways could be raised; however, there is the concern that a raised roadway would be unattractive to the residents below.
- A store near the railroad crossing has moved west in anticipation of the project.
- A trumpet interchange is planned at MLK Parkway.
- The WHA has plans to revitalize the South Creekwood Community.
- Controlled access between Princess Place and MLK Parkway is not necessarily unattractive to WHA because it might allow for a more pleasant gated community.
- The WHA and City have regularly scheduled meetings on the first Thursday of every month at 3:30. URS plans to attend the meeting in April.
- John Hatton will send URS their conceptual plan.
- \$60 million for Hope 6.

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- Park at north end could be 4(f) because it is a planned park.
- Roadway extension alternatives would be designed in April at the earliest.

ACTIONS REQUIRED:

- URS plans to attend the WHA and City meeting on the first Thursday in April at 3:30.
- John Hatton will send URS their conceptual plan.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

June 8, 2007

PROJECT: Independence Boulevard Extension, Randall Parkway to Martin Luther King, Jr. Parkway, WBS No. 37764.1.1 (U-4434), New Hanover County F. A. Project No.STP-1209(4)

SUBJECT: Redevelopment at the NE and SE Corners of Market Street and Kerr Avenue

ATTENDEES:

Stephanie Ayers, NC State Ports Authority
Bill Bennett, NC State Ports Authority
Layton Bedsole, NC State Ports Authority
David Griffin, URS Corp.
Pete Trecansky, URS Corp
Wade Kirby, NCDOT

David Griffin opened the meeting requesting an introduction of attendees and discussed the purpose of the meeting. The meeting was then turned over to Peter Trecansky.

Mr. Trecansky said URS was developing the Purpose and Need of the project. The project proposes an alternative North South route in Wilmington to College Road. The project is proposed to extend Independence Boulevard form Randall Parkway to Martin Luther King. Independence Boulevard will be part of the Wilmington loop. A portion of the project is on new location and based on the Feasibility Study, approximately 120 to 150 households would be relocated. Because of this, NCDOT has filed a Notice of Intent to complete an Environmental Impact Statement (EIS).

NCDOT requested the meeting with the NC State Ports Authority to evaluate whether an intermodal link between the State Ports and the Wilmington Airport could be used as part of the Purpose and Need of the project. Mr. Trecansky expressed concerns the Merger Team may request NCDOT consider widening College Road as a viable alternative.

The Port Authority indicated there was not enough traffic or communication between the Ship Port and the Airport to support this linkage as part of the Purpose and Need of the project.

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www.ncdot.org/doh/preconstruct/pe/

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC 27601

The Port Authority said the truckers took either I-140 or MLK Parkway to NC 133 to US 421 to the Port. The Port Authority believed the Skyway Bridge once completed, could be a primary truck route as oppose to coming through downtown Wilmington. They generally felt Independence Boulevard to MLK would not be a viable truck route.

URS asked about the clearance over the railroad tracks. The Port Authority said clearance needed to allow for double stacked containers with one "High Cube Container" allowed. A "High Cube Container" is 8-inches taller then a standard container. The Port Authority said the empty containers go all the way to the West Coast as double stacked. The Port Authority will try to get a clearance height for design.

URS asked the Port Authority if they had any project volumes of railroad traffic. This information would be useful because the Independence Boulevard extension proposes to cross the railroad tracks twice. This information would be used to evaluate the need for grade separation. The northern most crossing will probably require grade separation. The southernmost crossing is more challenging because the grade may not be able to be reduced quickly enough to tie into existing conditions on the south side. The southern tie in may require some reconfiguration of the area. The Port Authority said Billy Helms (corrected after the meeting to Bill Tucker via e-mail), with the Wilmington Terminal Rail Yard, should have information on the train volume.

The Port Authority presented the Long-Range Plan from the Wilmington MPO. The plans show the tracks being re-route to the west side of the Cape Fear River. This would eliminate the two crossings associated with the project.

Following the meeting the Port Authority provided the following information in e-mails from Mr. Bennett and Ms. Ayers:

- Projected Rail growth for the Year 2015 (Sent to NCDOT Rail Division)
- Contact Information for Bill Tucker: (910) 343-0461
- After discussion with the Business Development department, the Ports Authority do not anticipate that there will be any cargo moving in combination water-air via Port of Wilmington (to or from ILM airport).
- The minimum CSX height requirement of 23' 6" is sufficient for moving double stacked containers via rail.

MEMORANDUM

August 10, 2007

TO: Project File

FROM: Peter Trencansky

SUBJECT: Record of Meeting with NCDOT, August 10, 2007. Room 470, Highway Building, 1 Wilmington Street, Raleigh. State Project 37764.1.1 (TIP U-4434) New Hanover County Independence Boulevard Extension Merger Screening Meeting

ATTENDEES

Brian Yamamoto, North Carolina Department of Transportation (NCDOT), Project Development and Environmental Analysis Branch (PDEA)

Wade Kirby, NCDOT, PDEA

Ron Lucas, Federal Highway Administration (FHWA)

Greg Brew, NCDOT Roadway

David Wainwright, North Carolina Department of Environment and Natural Resources (NCDENR), Division of Water Quality (DWQ)

John Merritt NCDOT PDEA Natural Environment Unit (NEU)

Worth Calfee NCDOT PDEA NEU

Peter Trencansky, URS

Jeff Weisner, URS

Duane Verner, URS

Teleconference ATTENDEES

Mason Herndon, NCDOT PDEA Division 3

Jennifer Fry, United States Army Corps of Engineers (USACE)

PURPOSE

The purpose of the meeting was to discuss the applicability of the Merger 01 process to the Independence Boulevard Extension project.

MEETING NOTES

NCDOT opened the meeting stating the purpose is to discuss whether or not the project would benefit from the Merger 01 process. URS followed with a brief history of the project and project constraints as identified by the Environmental Determination Report. URS noted the project would likely require an individual permit and met the threshold for inclusion in the Merger process, but the range of alternatives

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is limited. URS noted impact to the human environment was the major issue in that 80-100 relocations were possible.

With limited alternatives, there is little benefit to include the project in the Merger 01 process. The range of alternatives was limited due to the existing terminus of Independence Boulevard, the existing development, Maides Park and the need for interchange spacing along Martin Luther King Jr. Parkway (MLK).

USACE noted wetlands on a large portion of the Cameron property in the northern section of the study area, south of MLK, had been drained and a jurisdictional determination (JD) was requested for Maides Park. USACE also noted coordination could be handled through the permitting process.

NCDOT suggested a 2A/4A concurrence point meeting to discuss bridging and minimization issues. USACE stated this was not necessary and coordination could be handled through the permitting process. FHWA agreed key issues could be handled through the permitting processes.

NCDWQ and USACE discussed streams in the study area. USACE noted the streams represented standard urban systems already impacted. As such, NCDWQ agreed the project could be removed from the Merger 01 process.

With limited alternatives, NCDOT will evaluate whether the project can be downscoped from Environmental Impact Assessment (EIS) to an Environmental Assessment (EA). In such case, FHWA may have to rescind the Notice of Intent. If the project becomes controversial with the Wilmington Housing Authority, then the EIS could be reconsidered.

Consensus was achieved among the co-chairs to take the project out of the Merger 01 process. The meeting was adjourned.

cc: Attendees
File

MEMORANDUM

November 26, 2007

TO: Project File

FROM: Chris Werner

**SUBJECT: Record of Meeting with Wilmington Housing Authority (WHA), November 26, 2007.
WHA Conference Room
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Boulevard Extension
Project Coordination Meeting**

ATTENDEES

Glenn Floyd	HEO, Inc
Don Tise	Tise-Kiester
Richard James	Wilmington Housing Authority
Laura Hines	Wilmington Housing Authority
Donna Ray Mitchell	Cole, Jenest & Stone
Windell Daniels	Daniels Development
Anthony Prinz	Wilmington Metropolitan Planning Organization
Wade Kirby	NCDOT Program Development and Environmental Analysis Branch
Brian Yamamoto	NCDOT Program Development and Environmental Analysis Branch
Allen Pope	NCDOT Division 3
Joe Blair	NCDOT Division 3
Peter Trencansky	URS Corporation
Chris Werner	URS Corporation

PURPOSE

The purpose of the meeting was to continue coordination of the Independence Boulevard extension through the Winfield Scott property, owned by the Wilmington Housing Authority (WHA). The meeting included representatives from the WHA, the Housing and Economic Opportunities, Incorporated (HEO, Inc), and NCDOT. The HEO, Inc is a non-profit subsidiary of the WHA and is responsible for managing the development of the Winfield Smith property.

MEETING NOTES

Wade Kirby began the meeting with introductions and followed by a brief project description and history. NCDOT has contracted URS to prepare the Environmental Document for the extension of Independence Boulevard to Martin Luther King Jr. Parkway (MLK). The project will include a full range of alternatives

with one of the better alternatives being considered traversing the Winfield Smith property. NCDOT would like to maintain coordination with the WHA to minimize possible conflicts between the two projects. Items discussed include the following:

- Allen Pope noted this project is currently not funded for Right of Way acquisition or construction through the Transportation Planning Program (TIP); however, additional funding sources are possible outside of the TIP so the project could start sooner.
- Peter Trencansky reviewed the NEPA Process, identifying the studies which will need to be completed as well as the Agencies which will be participating in the decision making process.
- Glenn Floyd, of HEO Inc., noted direct access to the Independence Boulevard Extension would be desired in order to re-orient the access to the redevelopment project via Hurst Street. Allen Pope replied an access point at Hurst Street is not likely because the grade separation at the railroad crossing and Martin Luther King, Jr. Parkway would prohibit access here. Mr. Pope noted access to Princess Place from Independence Boulevard per the Feasibility Study would be difficult because of the grade separation at the railroad crossing.
- HEO, Inc wanted to secure funding for the Winfield Smith property for September 2008 which means the tax credit would need to be submitted in January 2008. They were considering constructing one larger building with 90 to 100 units on this property. Considering the Independence Boulevard alignment, the front of the building would be changed to face the 30th Street direction. Per a follow up conversation between HEO, Inc and NCDOT, Mr. Floyd indicated they decided not to apply for tax credit for the Winfield Smith property in 2008. HEO, Inc. believed without knowing how Independence Boulevard would traverse the property, funding would likely not be approved. They would proceed with site evaluation including a wetland survey.
- NCDOT is currently in the process of converting MLK to full control of access and no new access points are anticipated. Mr. Windell Daniels noted a new church is to be constructed east of Kornegay Avenue. He did not think the church was aware the right of way control on MLK was to change and indicated he would inform them.
- Don Tise of Tise-Keister Architects noted their plans currently reserved 100 feet of right of way for the Independence Boulevard Extension. Brian Yamamoto stated the expected four-lane typical section will require a right of way width greater than 100 feet and requested URS to determine and provide the typical right of way width to WHA for incorporation into their future plans. (This has been attached to these minutes.)
- Mr. Floyd asked if moving the Independence Boulevard Extension corridor closer to 30th Street was being considered. Mr. Yamamoto stated that a full range of alternatives would be evaluated and the final corridor would not be selected at least until 2010. No guarantee can be made as to the final location of the Independence Boulevard Extension before then.
- NCDOT anticipates holding a public workshop in the late spring/early summer of 2008 to receive public comment on the concepts/alternatives. NCDOT would also coordinate with the WHA prior to the workshop.
- NCDOT is currently involved in a condemnation lawsuit for a tract of land located within the northern portion of the study area. The case is supposed to be reviewed in mid-January so NCDOT anticipates knowing more by then. NCDOT suggested another reconvening at this time.

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cc: Attendees
File



"Devens, Thomas E"
<tedevens@ncdot.gov>
05/17/2011 02:37 PM

To "Peter_Trencansky@URSCorp.com"
<Peter_Trencansky@URSCorp.com>, "Mccollum, Ron"
<remccollum@ncdot.gov>, "Johnson, Benjetta L"
cc "Mike_Littlefield@URSCorp.com"
<Mike_Littlefield@URSCorp.com>,
"Michael_Lindgren@URSCorp.com"
bcc

Subject RE: U-4434 Summary of Roadway Design Meeting

History:  This message has been replied to.

Thanks Peter. My minor clarifications are in BLUE.
ted

From: Peter_Trencansky@URSCorp.com [mailto:Peter_Trencansky@URSCorp.com]
Sent: Monday, May 16, 2011 7:32 AM
To: Devens, Thomas E; Mccollum, Ron; Johnson, Benjetta L; Sura, Chandrakant C
Cc: Mike_Littlefield@URSCorp.com; Michael_Lindgren@URSCorp.com
Subject: U-4434 Summary of Roadway Design Meeting

All,

Below is a summary of the decisions made at last weeks meeting and a scope for developing the conceptual designs. Please take a look and let me know if you have and questions or additional comments.

Summary of Meeting

Attendees: Ted Devens, Ron McCollum, Benjetta Johnson, Chandrakant Sura, Peter Trencansky, Mike Littlefield

Date: May 10, 2011

A meeting was held to discuss moving forward with functional designs for the Independence Boulevard Extension. Decisions and Action Items from the meeting include the following:

- URS would prepare a scope that would include developing conceptual level designs that include a centerline and assumed slope stakes based on estimated fill height and 3:1 slopes. If feasible the designs will have common breakpoints to minimize the effort of quantifying impacts
- NCDOT and URS will finalize a scope and determine an appropriate manday estimate that can be used against the functional design manday estimate negotiated in Task Order 5
- URS will identify any gaps in the traffic forecast data (such as adjacent intersections along Market Street and the 23rd Street interchange) and make recommendations to NCDOT on how to fill these gaps
- URS will evaluate intersection and interchange options for the Market Street crossing from a traffic standpoint to determine what may be feasible ([via quick-ron capacity analysis](#)) prior to developing any functional designs
- Ron McCollum will send the Preliminary Mapping to URS via FTS
- A field visit should be scheduled in the near future to help the project team better understand the

study area and design constraints. Peter and Ted will work to set up the visit and notify the appropriate individuals who should attend . [Site visit will attempt to include a meeting with Wilmington Housing Authority.](#)

Scope for Conceptual Designs

The CONSULTANT shall develop up to eight (8) conceptual centerline designs [for the Independence Blvd extension component](#), that meet the design criteria established for the project and will include alternatives that have partial and full control of access. The conceptual designs will include horizontal alignments only for the entire length of the project and profiles and cross sections will not be developed under this scope of work. In addition to the horizontal centerline [and slopestakes](#), edge of pavements will be drawn by offsetting the centerline. For non-controlled access alternatives, centerline and edge of pavements will be drawn for public roadway connections (driveway connections will not be included in the design). To the extent possible, the designs will utilize common breakpoints in order to provide for quantification and comparison of impacts , [and for mix-and-match opportunities.](#)

The CONSULTANT shall develop assumed slope stake limits based on estimated height of fill and a 3:1 fill slope (or between 4:1 and 6:1 where the alignment is at-grade). An assumed right-of-way limit will also be established based on offsetting the slope stake limits 25-feet, to account for drainage ditches, construction access and uncertainty due to the level of design. Once right-of-way limits are established, the CONSULTANT will develop a summary of relocations, including categorizing business and residential relocations separately. Parcels that will lose access will also be identified for each alternative and summarized.

The deliverable for the conceptual designs will be 3' x 6' roll plots showing the design (centerline, edge of pavements, slope stakes and R/W), relocations (relocation parcels shaded), base mapping, aerial photography and a matrix summary of impacts for each of the eight (8) alternatives.

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MEMORANDUM

July 14, 2011

TO: Ron McCollum

FROM: Peter Trencansky

**SUBJECT: Record of Meeting with NCDOT, July 14, 2011
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Boulevard Extension**

ATTENDEES

Ron McCollum, NCDOT
Peter Trencansky, URS
Mike Littlefield, URS

PURPOSE

The purpose of the meeting was to discuss the Functional Design Guidelines for the Independence Boulevard Extension project.

MEETING NOTES

Peter opened the meeting stating the purpose is to discuss the details of the functional design submittal including approval of the proposed design criteria. The following bullets are representative of the details discussed.

- Ron will review the proposed design criteria submitted by URS for approval. His review will be limited to the –L- line (Independence Blvd.)
- URS will provide typical sections for –L-, -Y2- (Randall Parkway), -Y6- (Market Street), -Y10- (MLK), and other unnamed –Y- line side streets where the quadrant interchange ramps tie. Typical sections are not needed for ramps and loops.
- URS will use GEOPAK automated superelevation for –L- and –Y- lines. Superelevation calculations are not required.
- URS will design alignments with spirals, excluding curves with a curvature of less than 4 percent and on curb and gutter sections. Horizontal curve lengths will be at least as long as the spirals in the same curve.
- URS will show turn lanes based on the preliminary capacity analysis results
- URS will show full curve data (properly grouped for spirals) on the plan sheets
- URS will provide vertical clearance calculations using the minimum number of points needed to show adequate clearance
- URS will use three points to calculate gores. Detailed gore calculations are not required.
- URS will include the sizing of any culverts 72 inches and greater in its manday estimate and quantities.

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- URS will not show station equalities on the plan or profile view for horizontal and vertical ties.
- URS will not show guardrail on the plan sheets, but will include widening for guardrail on the cross sections where guardrail is required.
- URS will show all grade separated crossings in the profile sheets.
- URS will tie all proposed profiles to within 0.5% of the existing profile grade and tie directly to existing ground. A detailed description of the tie point is not required.
- URS will provide PDF's and the DGN files for all cross section sheets.
- URS will run -L- and ramp cross sections separate from one another. The superelevation shapes from -L- will be displayed in the ramp cross sections and vice versa. In areas such as the tight urban diamond interchange, URS will run ramp cross sections on the same pattern line / cell / cross section file as -L-.

cc: Attendees
File

MEMORANDUM

August 26, 2011

TO: Ted Devens, PE

FROM: Peter Trencansky, PE, PTOE

**SUBJECT: Final Record of Meeting with Wilmington Housing Authority,
August 10, 2011
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Boulevard Extension**

ATTENDEES

Michael Krausse	Wilmington Housing Authority (WHA)
Adrian Early	WHA
Glenn Floyd	WHA
Allen Pope	North Carolina Department of Transportation (NCDOT) – Division 3
Ted Devens	NCDOT – Project Development & Environmental Analysis (PDEA)
Mike Kozlosky	Wilmington Metropolitan Planning Organization (WMPO)
Peter Trencansky	URS Corporations

PURPOSE

The purpose of the meeting was to continue coordination with Wilmington Housing Authority than began in 2004 and 2007.

MEETING NOTES

Ted opened the meeting stating the purpose of the meeting was to discuss the Wilmington Housing Authorities ongoing and future plans in the vicinity of the Independence Boulevard Extension. The following bullets are representative of the details discussed.

- WHA stated that they had recently applied for a \$5 million federal grant to build an Educational Resource Center on the portion of the Winfield-Smith property south of Hurst Street. The center would be utilized for community activities such as the Headstart program, etc. and would serve the community as a whole. Conceptual architectural site plans (attached) for the site, as well as the site north of Hurst were provided to NCDOT and WMP by WHA.
- WHA had submitted a previous grant application for the first round of funding and were unsuccessful; however based on subsequent meeting with Housing and Urban Development (HUD) they were cautiously optimistic about getting a grant during the second round of funding. The anticipated announcement of the grant awards is for the end of September 2011.
- WHA stated that if the grant application was successful that construction of the facility would have to be completed in 18 months. WHA noted that they currently only have a site plan and rough floor plans and that design of the facility had not been undertaken. WHA also noted that

- there had been some preliminary discussions on partnering with local governments to provide recreational amenities on the property, in the form of walking trails, etc.
- WHA stated that they currently did not have imminent plans for the portion of the parcel located north of Hurst Street.
 - WHA stated that they (as well as HUD) would have some concerns with developing the property if there would be an elevated roadway adjacent to the development.
 - WHA stated that they would maintain ownership of the entire parcel and that it was not anticipated that any of the recreational elements would be considered public parks or recreation areas. NCDOT noted that parks are considered Section 4(f) resources and area planning constraint. WMPO stated that it was not likely that the City would designate the walking trails as a park.
 - WHA also stated that Creekside South was undergoing a \$13 million renovation, including the interior and exteriors of all of the units, with completion slated for December 31, 2012. The renovations would not change the physical footprint of the development and WHA would consider the property to be a planning constraint.
 - WHA also confirmed that they had a development at the intersection of Covil Avenue and Broad Street known as the Robert S. Jervay-Covil development, which consists of 14 units, with 11 for public housing and 3 are eligible for Section 8.
 - NCDOT stated that conceptual design was underway and that functional designs would likely begin development in the fall of 2011. NCDOT re-affirmed that there would not likely be access from Independence Boulevard to Hurst Street and that an overpass was being considered at the crossing, with Hurst Street remaining open under the overpass.
 - NCDOT also re-affirmed that the railroad crossing would be grade separated and that the likely right-of-way width at the southern end of the Winfield-Smith property would be in the range of 350-400 feet wide. NCDOT also stated that the right-of-way width throughout the parcel would be 150-200 feet with slightly more needed at the Hurst Street grade separation.
 - It was agreed that additional coordination would be needed in the future and that NCDOT would coordinate with WHA as we begin functional design development. WHA will contact Mike Kozlosky at the WMPO to let him know the outcome of the grant application. WMPO will provide this information to NCDOT.

cc: Attendees
File

MEMORANDUM

August 26, 2011

TO: Ted Devens, PE

FROM: Peter Trencansky, PE, PTOE

**SUBJECT: Record of Meeting on Conceptual Design, August 25, 2011
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Boulevard Extension**

ATTENDEES

Brian Yamamoto	NCDOT – Project Development & Environmental Analysis (PDEA)
Ted Devens	NCDOT – PDEA
Ron McCollum	NCDOT – Roadway Design Unit
Chandrakant Sura	NCDOT – Transportation Mobility and Safety
Matt Carlisle	NCDOT – Transportation Mobility and safety
Peter Trencansky	URS Corporations

PURPOSE

The purpose of the meeting was to continue discussion on the conceptual design of the project and discuss potential intersection treatments and the typical section for the project.

MEETING NOTES

Ted opened the meeting stating the purpose of the meeting was to discuss the conceptual design and provide URS with guidance on how to move forward with completing the conceptual design. The following bullets are representative of the details discussed.

- The first topic of discussion related to confirming the recommendations for grade separated crossings at the two railroad crossings. Peter Trencansky stated that there were currently two trains a day, which translates to an exposure rate of 85,200, which is more than 2.8 times the threshold for grade separation. All attendees agreed that moving forward with both crossings as grade separated was the most appropriate solution.
- The group concluded that for quadrant intersections designs, the need exists for a high level of access control on any quadrant intersection connector roads – either limited or full control – in order to maintain long-term capacity. Connector roads will require turn lanes, as appropriate, where they connect to Independence and Market. The group also identified a possible/probable need for three-lanes on the connector roads where any left-turn movements may occur, with monolithic islands to control access.
- The next topic related to the potential for an at-grade intersection at Market Street. Previous capacity analysis has shown that a conventional at-grade intersection would not work. URS completed a conceptual capacity analysis of an at-grade quadrant configuration that showed that

the capacity was at the very upper threshold of being operational in the design year. Based on a conversation the following reasons were identified for eliminating the at-grade quadrant intersection option:

- Traffic capacity was at the upper limits of LOS acceptability, with several intersections having movements that had volume to capacity (v/c) ratios greater than 1.0. This was a concern especially due to the area being a high growth area and that the forecast would be redone in the future with a design year of 2040 – which will likely increase volumes above the existing forecast.
- That the footprint and access control impacts of an at-grade quadrant would be similar to designs for a grade separated quadrant configuration or interchanges, especially if the quadrant connector ramps had a higher level of access control.
- The at-grade design is not consistent with the Market Street Corridor Study, which recommends a grade separation at Independence.
- Simulation of the traffic analysis in SimTraffic showed traffic queues backing up from quadrant connector roads onto Independence Boulevard.
- Without a grade separation, it would be more difficult to include the acceleration and deceleration lanes onto Independence, that were shown to be needed by the capacity analysis, due to the quadrant ramps being located in close proximity to the main at-grade intersection.
- An at-grade quadrant would not be as safe as grade separated options due to the greater number of conflict points for the at-grade configuration.
- Similarly, a list of reasons to potentially eliminate the grade separated quadrant configuration were developed, including:
 - Impacts may be of similar magnitude as interchange options and could be greater depending on the level of access control along the quadrant ramps
 - Capacity would be better than the at-grade options, but not as good as for an interchange.
 - May cause the closure of several of the north-south roadways parallel to Independence in order to allow the quadrant ramp connections
- The group discussed specific locations for grade separations, and determined that designs for the extension must include grade separations at the following locations:
 - Two RR Crossings (due to exposure index)
 - Market Street (see reasons to eliminate an at-grade design, above)
 - Princess Place (because of proximity to RR crossing)
 - Hurst Ave - lies in a very short project section between elevated highway bridges at the interchange at MLK and the grade separation at the RR and Princess Place that would not allow for adequate distance to provide access
- Substantial discussion revolved about which typical sections to study. Capacity analysis dictates that at least a 6-lane curb and gutter design with median is necessary for an at-grade crossing at Market Street; yet a 4-lane, median divided highway will work for a shoulder section without numerous at grade intersections. Early conceptual designs have provided alignments and footprints for both typical sections – to generate preliminary impact calculations with the hope of eliminating some. The following observations were made:

- Between Market and MLK: Due to the grade separations at Market, Princess Place, RR crossing, and MLK interchange and due to the short length of the segment, it is apparent that nearly the entire length of the segment will be elevated.
- Between Randall and Market: Due to the grade separations at the RR crossing and a grade separation at Market and due to the short length of that segment, it is apparent that the a majority of the length of the segment will be elevated.
- If nearly the entire Independence Blvd is elevated: For connections, reasonable bike grades, and for easy ADA compliance, it is preferable to have bike/ped accommodations at normal grade – which implies using a shoulder typical section at the top.
- The difference in footprint of a 6-lane C&G section with 23-foot median, as compared to a 4-lane w/ 46-foot median, is only one-foot. However, a 6-lane cross-section does not “work” according to its normal functions, based on several factors:
 - Since it is established the highway will be elevated, curb and gutter (usually for driveways and adjacent street connections) does not make sense.
 - The extra cost for six lanes of pavement is not warranted, when traffic can be carried by four lanes on a median-divided shoulder section.
- Based on these discussions the following preliminary decisions were made, subject to coordination with the third tri-manager, the Division 3 engineer:
 1. Both railroad crossings would be grade separated due to the exposure index being exceeded
 2. NCDOT will eliminate all at-grade alternatives at Market Street and move forward with only grade-separated alternatives
 3. NCDOT will maintain the grade separated quadrant configuration throughout the conceptual design phase.
 4. Based on the constraints within the corridor that essentially the entire project would be elevated; a six-lane curb and gutter typical section is not viable
 5. A four-lane elevated boulevard with a 46-foot depressed grass median would be the typical section used for the project.
 6. Chapter 2 of the DEIS will show all conceptual designs that are being considered,. Based on alternative eliminations at conceptual design stage, the document will then show what moved into functional design and what was subsequently removed (or added) at that time. The same for preliminary design.
 7. Once the traffic projection is updated, more refined capacity analysis will occur for interchange and grade-separated quadrant intersection options – at Market St.

cc: Attendees
File

MEMORANDUM

October 07, 2011

TO: Ted Devens, PE

FROM: Peter Trencansky, PE, PTOE

**SUBJECT: Record of Meeting with NCDOT Project Team,
October 03, 2011
State Project 37764.1.1 (TIP U-4434)
Independence Boulevard Extension, New Hanover County**

ATTENDEES

Ted Devens	NCDOT – Project Development & Environmental Analysis (PDEA)
Ron McCollum	NCDOT – Roadway Design Unit
BenJetta Johnson	NCDOT – Congestion Management Unit
Chandrakant Sura	NCDOT – Congestion Management Unit
Peter Trencansky	URS Corporations

PURPOSE

The purpose of the meeting was to continue the ongoing review of the conceptual design plans and associated traffic capacity analysis with the goal of making recommendations on which alternatives to carry forward to functional design.

MEETING NOTES

Note: The naming convention for the quadrant interchanges was revised at this meeting, The draft meeting minutes included a full summary of the meeting based on the naming convention prior to meeting, with the new naming convention being included using track changes. Once the minutes were reviewed, the final meeting minutes accepted all changes such that the new naming convention will be included moving forward.

Ted opened the meeting stating the purpose of the meeting was to discuss the conceptual design drawings for the Independence Boulevard Extension. The goal was to provide input to URS such that the design drawings could be revised and re-submitted to NCDOT for final review prior to the alternative selection meeting.

The following bullets are representative of the details discussed.

- The project team re-iterated the prior decision that at-grade quadrant intersection would be eliminated due to inadequate traffic operations.
- The group discussed the quadrant interchange layouts, with the following items being discussed:
 - That the quadrant naming convention should be revised such that quadrant A is in the top right corner of the plan sheets as it follows the –L- alignment.

- That the operations results for all of the quadrant configuration with left-overs on Independence Boulevard were relatively poor and included queuing along Independence Boulevard. It was agreed to by the team that the recommendation be made that the **left-over options along Independence Boulevard should not be carried forward to the functional design stage.**
- Quadrant D (with AD and BD combinations)
 - Does not operate as well as the other quadrants from a traffic standpoint
 - Very heavy left turn movement from Eastbound Market Street to Northbound Independence Boulevard. May eventually require triple left turn lanes.
 - Substantially higher impacts than other quadrant options
 - Impacts minority community
 - Not consistent with Market Street Corridor Study
 - A connection opposite Darlington Avenue would create an 8-phase signal with very high volumes
 - Quadrant AD travel time double the other options and had some spillback along Market Street
 - **Recommended that Quadrant AD and BD combinations be eliminated**
- Quadrant B (With BC combination) (BD combination eliminated above)
 - Design should be revised such that it does not close Wayne Street, if possible.
 - Eastern alignments require realignment of Darlington Avenue (in quadrant C) and Western alignments cause closure of Wayne Street
 - A connection at the existing Mercer Avenue intersection would allow for a 3-leg intersection at Market Street, improving the traffic operations substantially
 - Would be consistent with Market Street Corridor Study
 - Team felt that the **BC combination was very strong and should be recommended as an alternative that is carried forward to the functional design stage**
- Quadrant A (with AC combination, AD combination eliminated above)
 - Maintaining access to 30th Street would be more difficult with this configurations, especially the further west the alignment is located
 - For western alignments, 30th Street would need to be realigned to connect to 29th Street
 - Team felt that **AC combination had enough positive attributes that it could be recommended as an alternative that is carried forward to functional design depending on the centerline alignments that are chosen.**
- The group also discussed the two interchange options as follows:
 - Diverging Diamond Interchange (DDI)
 - Works from a capacity standpoint, but there are some concerns with the tight footprint and cars potentially queuing within the interchange.
 - Average travel time is longer (37% longer than TUDI for PM Peak, similar for AM Peak)
 - Consistently causes greater impacts than the TUDI or quadrant options
 - Conceptually requires control of access further along Market Street
 - Team felt that the recommendation should be made that the **DDI should not be carried forward to functional design.**

- Tight Urban Diamond Interchange (TUDI)
 - Worked well from a traffic operations standpoint
 - Had fewer impacts than DDI interchange, but was generally higher than quadrant options.
 - Team felt that the recommendations should be made that the **TUDI should be carried forward to functional design**
- The group discussed the interchange options at Martin Luther King Jr. Parkway and the project team agreed that the 50 mph flyover design should be included in the functional design stage of the project. NCDOT policy dictates that the driver expectation is for a higher speed connection, consistent with a 50 mph design. Minimization to a lesser design speed or bridging will be considered at a later date if environmental constraints are substantial.

MEETING RECOMMENDATIONS

The following recommendations will be made by the project team when the alternative selection meeting is held with Division 3 and Wilmington MPO staff:

- Quadrant option AC should be carried forward to functional design depending on the centerline alignment selected
- Quadrant Option BC should be carried forward to functional design
- Eliminate Quadrant Options AD and BD from further study
- Tight Urban Diamond Interchange should be carried forward to functional design
- Eliminate Diverging Diamond Interchange from further study
- Trumpet interchange with 50 mph design speed be carried forward to functional design
- All at-grade quadrant options and grade separated quadrants with left-overs along Independence Boulevard should be eliminated

ACTION ITEMS

- URS to re-run capacity analysis to try to eliminate any individual movements that operate at LOS E or F.
- URS to develop additional analysis of 3-leg option for quadrant BC option that can be utilized with Eastern Alignments
- URS to develop a graphic that shows the individual movement LOS for each configuration being evaluated
- URS to update Conceptual Design Plans based on NCDOT input and re-plot designs with relocations shown. Provide NCDOT with 1 set of revised plans
- URS to update impact matrices based on design revisions
- URS to re-designate quadrant naming convention on all elements of the analysis
- URS to provide meeting summary to attendees

cc: Attendees
File

MEMORANDUM

October 27, 2011

TO: Ted Devens, PE

FROM: Peter Trencansky, PE, PTOE

SUBJECT: **Record of Meeting with NCDOT Project Team,
October 26, 2011
State Project 37764.1.1 (TIP U-4434)
Independence Boulevard Extension, New Hanover County**

ATTENDEES

Ted Devens	NCDOT – Project Development & Environmental Analysis (PDEA)
Brian Yamamoto	NCDOT - Project Development & Environmental Analysis (PDEA)
Ron McCollum	NCDOT – Roadway Design Unit
Gary Lovering	NCDOT – Roadway Design Unit
BenJetta Johnson	NCDOT – Congestion Management Unit
Chandrakant Sura	NCDOT – Congestion Management Unit
Chris Werner	URS Corporation
Peter Trencansky	URS Corporation

PURPOSE

The purpose of the meeting was to continue the ongoing review of the conceptual design plans and associated traffic capacity analysis with the goal of making Project Team recommendations on which alternatives to carry forward to next stage in design phase. The recommendations would then be presented to Wilmington MPO and Division 3 staff at a future meeting for their input.

MATERIAL ATTACHMENTS

For documentation purposes, several attachments are pertinent to these minutes. These items presented information which was discussed as a material part of decision-making:

- Meeting Agenda
- Quantitative Comparison of Alternatives - matrix
- Qualitative Comparison of Alternatives – two different matrices

MEETING NOTES

Ted opened the meeting stating the purpose of the meeting. Peter then distributed the agenda for the meeting and began by summarizing the conclusions from project team meetings held on 7/5/2011, 8/25/2011 and 10/3/2011 as outlined on the attached agenda.

Peter also reviewed the updates to the capacity analysis, including the evaluation of quadrant configuration BC with three-leg intersections at Market Street. The evaluation showed that the average delay would be reduced by approximately 10 seconds if the intersections had a three-leg configuration. BenJetta and Chandrakant re-affirmed their conclusions from the 10/3/2011 meeting that the Tight Urban Diamond Interchange (TUDI), Quadrant BC and Quadrant AC were the most desirable and that the Diverging Diamond Interchange (DDI), Quadrant AD, and Quadrant BD were less desirable.

Prior to beginning the selection process Peter reviewed the environmental constraints within the study area and stated that the field delineations that were ongoing were very consistent with those shown on the environmental features map, with the following exceptions:

- The wetlands in the southeast quadrant of the Randall Parkway/Independence Boulevard intersection were much less than those shown in the GIS database due to the recent development in the area.
- A small wetland pocket was identified along both sides of Covil Avenue slightly south of the Broad Street intersection
- The wetlands on the Wilmington Housing Authority parcel were determined to not be wetlands during the delineation process

Following the review of the decisions from previous meetings and the environment features, the team began the process of selecting which alternatives would be carried forward to preliminary design.

The following items are representative of the details discussed.

Market Street Interchange Alternatives

- The project team re-affirmed the prior decision from the 10/3/2011 meeting that the general TUDI, Quadrant AC and Quadrant BC would be carried forward in the evaluation of alternatives. Each of the interchange options would be considered for the each of the alignments selection in the next section, with a final determination made for each combination of alignment and interchange type.

Selection of Alignment Alternatives to Carry Forward

- The evaluation of alignment began by comparing the alignments that had similar attributes, including:
 - Covil Avenue Corridors (Alternatives 1, 2, 3 and 5) – those that follow or closely parallel the existing Covil Avenue and Montgomery Avenue alignment, and would essentially replace the existing roadway with the proposed extension
 - Mercer Avenue Corridor (Alternatives 4 and 8) – those that follow or closely parallel the existing Mercer Avenue Corridor
 - New Location Corridors (Alternative 6 and 7) – those that would be located between Covil Avenue and Mercer Avenue and would maintain substantial portions of the existing roadways
- The evaluation included both quantitative evaluations based on the impacts presented in the impact matrices and qualitative evaluations based on the effects denoted on the *Qualitative Alternatives Comparison*.

Covil Avenue Corridors (Alternatives 1, 2, 3 and 5)

- The corridors were compared and the positive and negative attributes of each corridor were discussed. Based on the comparison it was determined that the **Alternative 2 alignment was preferred** over the remaining three alignments due to the following reasons:
 - Better alignment to accommodate traffic control of Randall Pkwy intersection improvement

- Less impact to east side of Covil
- Reduces Multi-family residential impacts
- Abuts east side of Wilmington Housing Authority parcel
- Has a more compact footprint between Market Street and Princess Place and affects fewer blocks of houses, leaving more complete blocks parallel to the corridor
- Does not have any relocations in Section C
- Does not conflict with power line in Section C
- It was also recommended that additional evaluation of the parcels south of Market Street be conducted to determine the feasibility of providing access to the areas that would become landlocked by the project

Mercer Avenue Corridors (Alternative 4 and 8)

- The corridors were compared and the positive and negative attributes of each corridor were discussed. Based on the comparison it was determined that the **Alternative 8 alignment was preferred** over Alternative 4 due to the following reasons:
 - Maintains more of the Mercer Avenue alignment and provides access to Randall Parkway
 - Abuts the western edge of the Wilmington Housing Authority property instead of splitting the parcel into two pieces, likely leaving the parcel undevelopable
 - Has substantially lower overall impacts than Alternative 4.
 - Alternative 8 is among those alternatives with the lowest overall impacts.

New Location Corridors (Alternatives 6 and 7)

- Both alignments are very similar to each other, with the maximum distance separating the centerlines being less than 35 feet. After a review and comparison of the alignments it was determined that the **Alternative 7 alignment was preferred** over Alternative 6 due to the following reasons:
 - Alignment was slightly better.
 - Fewer impacts
 - Allowed for more of Covil Avenue to remain open due to the alignment being slightly to the west
 - Alternative 7 has the lowest overall impacts of any alternative.

Review of Interchange and Alignment Combinations

- Each of the three alignments (Alternatives 2, 7 and 8) were evaluated based on the three interchange options at Market Street (TUDI, Quadrant AC, Quadrant BC) with the following conclusions being agreed to by the project team:
 - Alternative 2 and 7 were determined to be acceptable for all three interchange options at Market Street
 - Alternative 8 was determined to be acceptable for the TUDI option at Market Street
 - Alternative 8 with the Quadrant AC and BC were discussed and the following concerns were raised by the project team:
 - Quadrant AC would require the relocation of the Econo Lodge or result in an offset intersection at Market Street due to the existing location of the Market Street intersection with Wayne Avenue
 - Quadrant BC would require the closure of the Wayne Street intersection at Market Street, resulting in a re-routing of traffic to Colonial Drive, a detour of about 1.3 miles.
- Following the discussion of combinations it was determined that all three interchange options for each of the three alignments would be carried forward at this point and presented at the meeting with the Division 3 and MPO staff. A determination on whether or not to eliminate any of the quadrant alternatives for Alternative 8 would be made at that meeting.

Discussion of Next Steps

Following the selection of alternatives to carry forward, the team discussed the next steps in the project with the following outcomes:

- That the information presented to the Division/MPO should focus more on what alternatives we are recommending than taking them through the entire process. A brief summary of the decisions will be included but the majority of the time should be spent on discussing the options recommended
- During further design efforts, the selected conceptual designs can be modified slightly to include some additional detail needed to develop construction costs. The current conceptual designs would be considered to be to the level of functional design
- Construction cost estimates would be prepared for all alternatives and right-of-way cost estimates would be requested for the TUDI options for Alternatives 2, 7 and 8. Update TIP cost estimates accordingly.
- The alternatives screening report will be prepared and include an extensive discussion of the alternatives selection process documenting the decisions of the project team meetings held to date.
- It was agreed that a meeting with local governments would be held prior to the public workshop to prepare the locals and give them a better understanding of the proposed alternatives. Bicycle and Pedestrian accommodations will need to be determined, through coordination with Bob Mosher in the NCDOT Bicycle and Pedestrian Division, prior to preliminary designs being developed.
- The evaluation of noise impacts and mitigation was discussed and it was determined that the noise study would be conducted between the development of the preliminary designs and the corridor public hearing. It was also recommended that Greg Smith be invited to attend the Citizen's Informational Workshop due to the likely concerns with noise.

MEETING RECOMMENDATIONS

The following recommendations were agreed to by the project team and will be presented when the alternative selection meeting is held with Division 3 and Wilmington MPO staff:

- Alternatives 2, 7 and 8 are recommended to be carried forward with the TUDI, Quadrant AC and Quadrant BC options at Market Street for each alignment
- Trumpet interchange with 50 mph design

cc: Attendees

Meeting Agenda

Independence Boulevard Extension STIP Projects No. U-4434



Project Team Meeting October 26, 2011

Meeting Purpose

Determine Project Team recommendations on which alternatives to carry forward to next stage in design phase. The recommendations will be presented to Wilmington MPO and Division 3 staff at a future meeting for their input.

Meeting Agenda

- Review of July 5, 2011 Project Team Meeting
 - Feasibility Study included a six-lane roadway with an at-grade intersection at Market Street
 - Traffic Forecasts were prepared for several typical sections and interchange configurations at Martin Luther King Jr. Parkway
 - Team determined that forecast “Build B” was the most appropriate forecast for use in evaluating the alternatives for the project
- Review of August 25, 2011 Project Team Meeting Findings
 - Capacity analysis developed for two cross-sections based on the projected traffic volumes:
 - If the highway is at-grade (which would involve signals), then a 6-lane median-divided facility could not accommodate the projected “Build B” volumes.
 - If the highway is elevated or otherwise does not have signalized intersections, then a 4-lane median-divided facility is appropriate.
 - Confirmed that both railroad crossings would be grade separated
 - Conventional at-grade intersection at Market Street would not work from a capacity standpoint
 - At-grade quadrant intersection would not work due concerns with capacity, queuing of traffic on Independence Boulevard, inability to accommodate acceleration and deceleration lanes and inconsistency with Market Street Corridor Study
 - Quadrant designs would need high level of access control – either limited or full control
 - Grade separation required at the following locations: both railroad crossings, Market Street, Princess Place, Hurst Avenue and Martin Luther King Jr. Parkway.
 - Based on above findings, it was determined that most of the new highway must be elevated as it advances northward from the Randall Parkway intersection.
 - Four-lane median divided typical section with a 46-foot median and open shoulders was determined to be the appropriate typical section
- Review of October 3, 2011 Project Team Meeting Findings
 - Quadrant Option AC should be carried forward to functional design depending on the centerline alignment selected
 - Quadrant Option BC should be carried forward to functional design
 - Eliminate Quadrant Options AD and BD from further study
 - Tight Urban Diamond Interchange should be carried forward to functional design
 - Eliminate Diverging Diamond Interchange from further study
 - Trumpet interchange with 50 mph design speed be carried forward to functional design

- All at-grade quadrant options and grade separated quadrants with left-overs along Independence Boulevard should be eliminated
- Review newer Capacity Analysis runs of connection alternatives at Market St
- Selection of Alternatives to Carry Forward based on the Market Street Intersection Alternatives
- Review Environmental Features
- Selection Alignment Alternatives to Carry Forward
- Review of Intersection and Alignment Alternative Combinations
- Final Selection of Alternative Combinations to Carry Forward
- Discussion of Next Steps
 - Validate Conceptual Designs
 - Meet with Division 3 Engineer and MPO to formally select alternatives to carry forward
 - Develop Construction Cost and Right-of-Way Estimates
 - Unit-Length (\$/lf) Cost comparison of retaining wall options, for future reference
 - Develop Traffic Forecast Update
 - Draft NRTR (fieldwork closely validates existing environ. features mapping south of MLK)
 - Develop Draft Alternatives Screening Report
 - Determine Bicycle and Pedestrian Accommodations (Prior to Preliminary Design)
 - Present Conceptual Designs to Wilmington and New Hanover County
 - Present Conceptual Designs to Public at CIW #2
 - Begin to Develop Preliminary Design Plans
 - Develop auxiliary lanes along MLK

Market Street Alternative	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocation							Potential Hazardous Materials Sites (No.)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Parks (No./Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure					

Alternative 1 Impacts															
Combined Total															
DDI	371	560	466	40	83	8	1	132	120	43	4	2.92	1.45	2 / 460	0 / 0.00
TUDI	379	417	398	31	83	8	1	123	113	44	4	2.92	1.45	2 / 460	0 / 0.00
Quadrant AC	563	375	469	29	71	8	1	109	101	43	4	2.92	1.45	2 / 460	0 / 0.00
Quadrant AD	1088	635	862	29	87	8	1	125	117	45	4	2.92	1.45	2 / 460	0 / 0.00
Quadrant BC	287	420	354	29	73	8	1	111	102	44	3	2.92	1.45	2 / 460	0 / 0.00
Quadrant BD	437	453	445	29	89	8	1	127	118	46	3	2.92	1.45	2 / 460	0 / 0.00

Alternative 2 Impacts															
Combined Total															
DDI	371	560	466	39	85	6	1	131	121	47	4	2.89	1.15	2 / 470	0 / 0.00
TUDI	379	417	398	31	84	6	1	122	114	43	4	2.89	1.15	2 / 470	0 / 0.00
Quadrant AC	563	375	469	27	67	6	1	101	101	45	4	2.89	1.15	2 / 470	0 / 0.00
Quadrant AD	1088	635	862	27	85	6	1	119	119	42	4	2.89	1.15	2 / 470	0 / 0.00
Quadrant BC	287	420	354	28	69	6	1	104	103	46	3	2.89	1.15	2 / 470	0 / 0.00
Quadrant BD	437	453	445	28	87	6	1	122	121	43	3	2.89	1.15	2 / 470	0 / 0.00

Alternative 3 Impacts															
Combined Total															
DDI	371	560	466	35	88	8	0	131	121	39	4	3.11	1.35	2 / 490	0 / 0.00
TUDI	379	417	398	29	84	8	0	121	116	36	3	3.11	1.35	2 / 490	0 / 0.00
Quadrant AC	563	375	469	28	77	8	0	113	108	33	4	3.11	1.35	2 / 490	0 / 0.00
Quadrant AD	1088	635	862	28	93	8	0	129	124	34	4	3.11	1.35	2 / 490	0 / 0.00
Quadrant BC	287	420	354	26	78	8	0	112	106	32	3	3.11	1.35	2 / 490	0 / 0.00
Quadrant BD	437	453	445	26	94	8	0	128	122	33	3	3.11	1.35	2 / 490	0 / 0.00

Alternative 4 Impacts															
Combined Total															
DDI	371	560	466	26	110	0	1	137	134	60	5	2.81	1.2	2 / 620	1 / 0.11
TUDI	379	417	398	24	110	0	1	135	133	57	5	2.81	1.2	2 / 620	1 / 0.11
Quadrant AC	563	375	469	25	101	0	1	127	126	44	6	2.81	1.2	2 / 620	1 / 0.07
Quadrant AD	1088	635	862	23	111	0	1	135	134	51	5	2.81	1.2	2 / 620	1 / 0.06
Quadrant BC	287	420	354	24	98	0	1	123	122	47	4	2.81	1.2	2 / 620	1 / 0.07
Quadrant BD	437	453	445	22	108	0	1	131	130	54	3	2.81	1.2	2 / 620	1 / 0.06

Alternative 5 Impacts															
Combined Total															
DDI	371	560	466	32	89	6	1	128	120	47	5	3.07	1.15	2 / 480	0 / 0.00
TUDI	379	417	398	28	88	6	1	123	118	37	4	3.07	1.15	2 / 480	0 / 0.00
Quadrant AC	563	375	469	27	72	6	1	106	101	37	5	3.07	1.15	2 / 480	0 / 0.00
Quadrant AD	1088	635	862	27	87	6	1	121	116	38	5	3.07	1.15	2 / 480	0 / 0.00
Quadrant BC	287	420	354	25	72	6	1	104	99	35	4	3.07	1.15	2 / 480	0 / 0.00
Quadrant BD	437	453	445	25	87	6	1	119	114	36	4	3.07	1.15	2 / 480	0 / 0.00

Alternative 6 Impacts															
Combined Total															
DDI	371	560	466	38	92	6	1	137	132	49	5	3.08	0.9	2 / 470	0 / 0.00
TUDI	379	417	398	33	88	6	1	128	125	49	4	3.08	0.9	2 / 470	0 / 0.00
Quadrant AC	563	375	469	28	68	6	1	103	102	46	5	3.08	0.9	2 / 470	0 / 0.00
Quadrant AD	1088	635	862	29	83	6	1	119	118	46	4	3.08	0.9	2 / 470	0 / 0.00
Quadrant BC	287	420	354	28	74	6	1	109	108	47	4	3.08	0.9	2 / 470	0 / 0.00
Quadrant BD	437	453	445	29	89	6	1	125	124	47	3	3.08	0.9	2 / 470	0 / 0.00

Alternative 7 Impacts															
Combined Total															
DDI	371	560	466	34	85	6	1	126	116	51	5	2.98	1.2	2 / 480	0 / 0.00
TUDI	379	417	398	30	80	6	1	117	110	51	5	2.98	1.2	2 / 480	0 / 0.00
Quadrant AC	563	375	469	25	63	6	1	95	90	46	5	2.98	1.2	2 / 480	0 / 0.00
Quadrant AD	1088	635	862	25	78	6	1	110	105	47	4	2.98	1.2	2 / 480	0 / 0.00
Quadrant BC	287	420	354	25	68	6	1	100	95	47	4	2.98	1.2	2 / 480	0 / 0.00
Quadrant BD	437	453	445	25	83	6	1	115	110	48	3	2.98	1.2	2 / 480	0 / 0.00

Alternative 8 Impacts															
Combined Total															
DDI	371	560	466	26	92	4	2	124	112	43	5	3.76	1.45	2 / 640	1 / 0.04
TUDI	379	417	398	26	89	4	2	121	111	39	5	3.76	1.45	2 / 640	1 / 0.03
Quadrant AC	563	375	469	21	77	4	2	104	98	39	6	3.76	1.45	2 / 640	0 / 0.00
Quadrant AD	1088	635	862	18	88	4	2	112	107	49	5	3.76	1.45	2 / 640	0 / 0.00
Quadrant BC	287	420	354	19	68	4	2	93	89	42	4	3.76	1.45	2 / 640	0 / 0.00
Quadrant BD	437	453	445	16	79	4	2	101	98	52	3	3.76	1.45	2 / 640	0 / 0.00

Carry Forward	Comments

Description: Symmetric widening of Covil Avenue and Montgomery Avenue			Comments
Yes	No		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		

Description: Asymmetric widening along West Side of Covil Avenue and Montgomery Avenue			Comments
Yes	No		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		

Description: Asymmetric widening along East side of Covil Avenue and new location East of Montgomery Avenue			Comments
Yes	No		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		

Description: Asymmetric widening along East side of Mercer Avenue and new location west of N. 31st Street			Comments
Yes	No		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		

Description: Widening along West side of Covil Avenue, transitioning to East side of Covil Avenue with new location east of Montgomery Avenue			Comments
Yes	No		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		

Description: New location parallel to West side of Covil Avenue and Montgomery Avenue			Comments
Yes	No		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		

Description: New location parallel to West side of Covil Avenue and Montgomery Avenue, slightly West of Alternative 6			Comments
Yes	No		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		

Description: New location parallel to East side of Mercer Avenue, transitioning to run parallel to N. 30th Street			Comments
Yes	No		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		

STIP U-4434 Conceptual Design Table of Impacts

Alternative 1 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Cirtical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemetries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				6	7	1	1	15	13	7	0.47	1	0	0	2.09	1.1	1 / 250	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				18	57	7	0	82	80	34	0.71	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section C				0	4	0	0	4	0	1	0.78	1	0	0	0.83	0.35	1 / 210	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				24	68	8	1	101	93	42	1.96	2	2	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
DDI				16	15	0	0	31	27	1	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI				7	15	0	0	22	20	2	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant A				2	3	0	0	5	5	1	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				2	5	0	0	7	6	2	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				3	0	0	0	3	3	0	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant D				3	16	0	0	19	19	2	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	40	83	8	1	132	120	43	1.96	2	4	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	379	417	398	31	83	8	1	123	113	44	1.96	2	4	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	29	71	8	1	109	101	43	1.96	2	4	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	29	87	8	1	125	117	45	1.96	2	4	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	29	73	8	1	111	102	44	1.96	2	3	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	29	89	8	1	127	118	46	1.96	2	3	0	2.92	1.45	2 / 460	0	0	0	0 / 0	0	0	0 / 0	0 / 0

Alternative 2 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Cirtical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemetries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				4	8	0	1	13	13	9	0.47	1	0	0	2.17	0.85	1 / 260	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				18	56	6	0	80	80	30	0.71	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section C				0	0	0	0	0	0	0	0.77	1	0	0	0.72	0.3	1 / 210	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				22	64	6	1	93	93	39	1.95	2	2	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
DDI				17	21	0	0	38	28	8	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI				9	20	0	0	29	21	4	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant A				2	3	0	0	5	5	1	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				3	5	0	0	8	7	2	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				3	0	0	0	3	3	5	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant D				3	18	0	0	21	21	2	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	39	85	6	1	131	121	47	1.95	2	4	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	379	417	398	31	84	6	1	122	114	43	1.95	2	4	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	27	67	6	1	101	101	45	1.95	2	4	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	27	85	6	1	119	119	42	1.95	2	4	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	28	69	6	1	104	103	46	1.95	2	3	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	28	87	6	1	122	121	43	1.95	2	3	0	2.89	1.15	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0

STIP U-4434 Conceptual Design Table of Impacts

Alternative 3 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Critical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemeteries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				6	9	1	0	16	16	11	0.47	1	0	0	2.29	1.1	1 / 260	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				14	54	7	0	75	75	16	0.70	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section C				0	9	0	0	9	4	1	0.78	1	0	0	0.82	0.25	1 / 230	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				20	72	8	0	100	95	28	1.95	2	2	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
DDI				15	16	0	0	31	26	11	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI				9	12	0	0	21	21	8	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant A				5	5	0	0	10	10	4	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				3	6	0	0	9	8	3	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				3	0	0	0	3	3	1	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0	
Quadrant D				3	16	0	0	19	19	2	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	35	88	8	0	131	121	39	1.95	2	4	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	379	417	398	29	84	8	0	121	116	36	1.95	2	3	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	28	77	8	0	113	108	33	1.95	2	4	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	28	93	8	0	129	124	34	1.95	2	4	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	26	78	8	0	112	106	32	1.95	2	3	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	26	94	8	0	128	122	33	1.95	2	3	0	3.11	1.35	2 / 490	0	0	0	0 / 0	0	0	0 / 0	0 / 0

Alternative 4 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Critical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemeteries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				3	13	0	1	17	16	12	0.47	1	1	0	1.55	1	1 / 260	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				15	82	0	0	97	97	30	0.74	0	2	0	0	0	0 / 0	0	0	0	1 / 0.06	0	0	0 / 0	0 / 0
Section C				0	0	0	0	0	0	0	0.76	1	0	0	1.26	0.2	1 / 360	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				18	95	0	1	114	113	42	1.97	2	3	0	2.81	1.2	2 / 620	0	0	0	1 / 0.06	0	0	0 / 0	0 / 0
DDI				8	15	0	0	23	21	18	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0.05	0	0	0 / 0	0 / 0
TUDI				6	15	0	0	21	20	15	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0.05	0	0	0 / 0	0 / 0
Quadrant A				3	4	0	0	7	7	0	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				2	1	0	0	3	3	3	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				4	2	0	0	6	6	2	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0.01	0	0	0 / 0	0 / 0
Quadrant D				2	12	0	0	14	14	9	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	26	110	0	1	137	134	60	1.97	2	5	0	2.81	1.2	2 / 620	0	0	0	1 / 0.11	0	0	0 / 0	0 / 0
TUDI	379	417	398	24	110	0	1	135	133	57	1.97	2	5	0	2.81	1.2	2 / 620	0	0	0	1 / 0.11	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	25	101	0	1	127	126	44	1.97	2	6	0	2.81	1.2	2 / 620	0	0	0	1 / 0.07	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	23	111	0	1	135	134	51	1.97	2	5	0	2.81	1.2	2 / 620	0	0	0	1 / 0.06	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	24	98	0	1	123	122	47	1.97	2	4	0	2.81	1.2	2 / 620	0	0	0	1 / 0.07	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	22	108	0	1	131	130	54	1.97	2	3	0	2.81	1.2	2 / 620	0	0	0	1 / 0.06	0	0	0 / 0	0 / 0

STIP U-4434 Conceptual Design Table of Impacts

Alternative 5 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Critical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemeteries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				4	8	0	1	13	12	10	0.46	1	1	0	2.34	0.9	1 / 270	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				14	56	6	0	76	74	21	0.71	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section C				0	2	0	0	2	0	1	0.78	1	0	0	0.73	0.25	1 / 210	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				18	66	6	1	91	86	32	1.95	2	3	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
DDI				14	23	0	0	37	34	15	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI				10	22	0	0	32	32	5	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant A				5	6	0	0	11	11	4	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				3	6	0	0	9	9	2	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				4	0	0	0	4	4	1	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0	
Quadrant D				4	15	0	0	19	19	2	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	32	89	6	1	128	120	47	1.95	2	5	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	379	417	398	28	88	6	1	123	118	37	1.95	2	4	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	27	72	6	1	106	101	37	1.95	2	5	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	27	87	6	1	121	116	38	1.95	2	5	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	25	72	6	1	104	99	35	1.95	2	4	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	25	87	6	1	119	114	36	1.95	2	4	0	3.07	1.15	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0

Alternative 6 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Critical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemeteries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				4	8	0	1	13	12	11	0.46	1	1	0	2.35	0.65	1 / 260	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				19	57	6	0	82	82	29	0.72	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section C				0	0	0	0	0	0	0	0.77	1	0	0	0.73	0.25	1 / 210	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				23	65	6	1	95	94	40	1.95	2	2	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
DDI				15	27	0	0	42	38	9	0	0	3	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI				10	23	0	0	33	31	9	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant A				2	1	0	0	3	3	1	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				2	7	0	0	9	9	2	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				3	2	0	0	5	5	5	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant D				4	17	0	0	21	21	5	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	38	92	6	1	137	132	49	1.95	2	5	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	379	417	398	33	88	6	1	128	125	49	1.95	2	4	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	28	68	6	1	103	102	46	1.95	2	5	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	29	83	6	1	119	118	46	1.95	2	4	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	28	74	6	1	109	108	47	1.95	2	4	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	29	89	6	1	125	124	47	1.95	2	3	0	3.08	0.9	2 / 470	0	0	0	0 / 0	0	0	0 / 0	0 / 0

STIP U-4434 Conceptual Design Table of Impacts

Alternative 7 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Critical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemeteries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				3	8	0	1	12	9	12	0.46	1	1	0	2.26	0.85	1 / 270	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				16	52	6	0	74	72	28	0.71	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section C				0	0	0	0	0	0	0	0.77	1	0	0	0.72	0.35	1 / 210	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				19	60	6	1	86	81	40	1.94	2	2	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
DDI				15	25	0	0	40	35	11	0	0	3	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI				11	20	0	0	31	29	11	0	0	3	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant A				2	1	0	0	3	3	1	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				2	6	0	0	8	8	2	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				4	2	0	0	6	6	5	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant D				4	17	0	0	21	21	6	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	34	85	6	1	126	116	51	1.94	2	5	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
TUDI	379	417	398	30	80	6	1	117	110	51	1.94	2	5	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	25	63	6	1	95	90	46	1.94	2	5	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	25	78	6	1	110	105	47	1.94	2	4	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	25	68	6	1	100	95	47	1.94	2	4	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	25	83	6	1	115	110	48	1.94	2	3	0	2.98	1.2	2 / 480	0	0	0	0 / 0	0	0	0 / 0	0 / 0

Alternative 8 Impacts

	Travel Time AM Peak (Hours)	Travel Time PM Peak (Hours)	Travel Time Average (Hours)	Relocations							Length (Miles)	Railroad Crossings (No.)	Potential Hazardous Materials Sites (No.)	Known Federally Listed Species (No. Within 1000 feet)	100-Year Floodplain (Acres)	Wetlands (Acres)	Stream Impacts (No./Linear Feet)	Nature Preserves (No.)	Significant Natural Heritage Areas (Acres)	Water Supply Critical Areas (Acres)	Parks (No./Acres)	Schools (No.)	Cemeteries (No.)	Recorded Historic Sites (No./Acres)	High Quality Resources (No. Crossings/ Acres)
				Business	Single Family Residential	Multi-Family Residential	Churches	Total	Total After Potential Avoidance	Accessory Structure															
Section A				4	10	0	2	16	13	15	0.46	1	1	0	2.5	1.2	1 / 300	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section B				9	53	4	0	66	65	22	0.76	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Section C				0	0	0	0	0	0	0	0.75	1	0	0	1.26	0.25	1 / 340	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Total				13	63	4	2	82	78	37	1.97	2	3	0	3.76	1.45	2 / 640	0	0	0	0 / 0	0	0	0 / 0	0 / 0
DDI				13	29	0	0	42	34	6	0	0	2	0	0	0	0 / 0	0	0	0	1 / 0.04	0	0	0 / 0	0 / 0
TUDI				13	26	0	0	39	33	2	0	0	2	0	0	0	0 / 0	0	0	0	1 / 0.03	0	0	0 / 0	0 / 0
Quadrant A				4	12	0	0	16	14	0	0	0	2	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant B				2	3	0	0	5	5	3	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant C				4	2	0	0	6	6	2	0	0	1	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Quadrant D				1	13	0	0	14	15	12	0	0	0	0	0	0	0 / 0	0	0	0	0 / 0	0	0	0 / 0	0 / 0
Combined Total																									
DDI	371	560	466	26	92	4	2	124	112	43	1.97	2	5	0	3.76	1.45	2 / 640	0	0	0	1 / 0.04	0	0	0 / 0	0 / 0
TUDI	379	417	398	26	89	4	2	121	111	39	1.97	2	5	0	3.76	1.45	2 / 640	0	0	0	1 / 0.03	0	0	0 / 0	0 / 0
Quadrant AC	563	375	469	21	77	4	2	104	98	39	1.97	2	6	0	3.76	1.45	2 / 640	0	0	0	0 / 0.00	0	0	0 / 0	0 / 0
Quadrant AD	1088	635	862	18	88	4	2	112	107	49	1.97	2	5	0	3.76	1.45	2 / 640	0	0	0	0 / 0.00	0	0	0 / 0	0 / 0
Quadrant BC	287	420	354	19	68	4	2	93	89	42	1.97	2	4	0	3.76	1.45	2 / 640	0	0	0	0 / 0.00	0	0	0 / 0	0 / 0
Quadrant BD	437	453	445	16	79	4	2	101	98	52	1.97	2	3	0	3.76	1.45	2 / 640	0	0	0	0 / 0.00	0	0	0 / 0	0 / 0

U-4434 Alternatives Comparison: Total Impacts (Considering potential avoidances)

Devens - Oct 2011

Alt	Alignment ONLY			Total
	A	B	C	
1	13	80	0	93
2	13	80	0	93
3	16	75	4	95
4	16	97	0	113
5	12	74	0	86
6	12	82	0	94
7	9	72	0	81
8	13	65	0	78

Alignment WITH Market Street Intersection Configuration					
DDI	TUDI	Quad AC	Quad AD	Quad BC	Quad BD
120	113	101	117	102	118
121	114	101	119	103	121
121	116	108	124	106	122
134	133	126	134	122	130
120	118	101	116	99	114
132	125	102	118	108	124
116	110	90	105	95	110
112	111	98	107	89	98



Wetlands	Stream
1.45	460
1.15	470
1.35	490
1.2	620
1.15	480
0.9	470
1.2	480
1.45	640







Comments
1 church in Section A
1 church in Section A
No churches
1 church in Section A, hits Beaumont Park access parcel
1 church in Section A
1 church in Section A
Takes 1 church in Section A
Takes 2 churches in Section A, hits Beaumont Park access parcel

High	16	97	4	113
Lo	9	65	0	78
Avg	13	78.1	0.5	91.6

High	134	High	1.45	640
Lo	89	Lo	0.9	460
Avg	113.4	Avg	1.2	513.8
Std Dev	11.3	102	125	
0.5x StD	5.7	108	119	
		Hi	Lo	

General Comments:
 Wetland differences - inconsequential
 Stream differences - minimum consequence, not enough to sway a decision

 Lower Impacts = GOOD
 Higher Impacts = BAD
 Inadequate Capacity = BAD

 102 or Lower (Avg minus Std Dev)
 102-108 Range (Avg minus 0.5 x Std Dev)
 125 or Higher (Avg plus Std Dev)
 119-125 Range (Avg plus 0.5 x Std Dev)
 No Fill = Mid-Range between High and Low Impacts
 Inadequate Capacity

U-4434 Qualitative Alternatives Comparison		Devens - Oct 2011				
Alternative		Alignment ITSELF	DDI Issues	TUDI Issues	Quad AC Issues	Quad BC Issues
1	Pros	Follows "public expectation" alignment of Covil Ave and then Montgomery Ave. Abuts east side of WHA parcel. Short bridge at Princess Place (PP) and the RR	Darlington Ave connection to Market stays intact	Darlington Ave connection to Market stays intact		
	Cons	S-curve at Market St	Mercer Ave is cul-de-sac'd Evans, Clay, & 31st Streets are cul-de-sac'd	Mercer Ave is cul-de-sac'd Evans & 31st Streets are cul-de-sac'd	Darlington Ave is Re-Routed to Market St 31st St is cul-de-sac'd	Darlington Ave is Re-Routed to Market St Mercer Ave is cul-de-sac'd
2	Pros	Comparable to Alt #1, but the S-curve is not as abrupt Follows "public expectation" alignment of Covil Ave and then Montgomery Ave Abuts east side of WHA parcel Short bridge at PP/RR	Darlington Ave connection to Market stays intact	Darlington Ave connection to Market stays intact		
	Cons		Mercer Ave is cul-de-sac'd Evans, Clay, & 31st Streets are cul-de-sac'd	Mercer Ave is cul-de-sac'd Evans & 31st Streets are cul-de-sac'd	Darlington Ave is Re-Routed to Market St 31st St is cul-de-sac'd	Darlington Ave is Re-Routed to Market St Mercer Ave is cul-de-sac'd
3	Pros	Semi-Straight Alignment Follows Colvil Ave alignment (but not Montgomery Ave) Abuts east side of WHA parcel Short Bridge at PP/RR ONLY Alternative with NO church impacts	Darlington Ave connection to Market stays intact	Darlington Ave connection to Market stays intact Mercer Ave connection to Market St stays intact		
	Cons	ONLY alt impacting 4 homes north of Princess Place (adjust alignment to avoid?)	Mercer Ave is cul-de-sac'd Evans St is taken/closed Clay & 31st Streets are cul-de-sac'd	Evans & 31st Streets are cul-de-sac'd	Darlington Ave is Re-Routed to Market St 31st St is cul-de-sac'd	Darlington Ave is Re-Routed to Market St Mercer Ave is cul-de-sac'd
4	Pros		Darlington Ave connection to Market stays intact Covil Ave is a long street still, but cul-de-sac'd		Darlington Ave connection to Market stays intact Covil Ave is a long street still, but cul-de-sac'd	Darlington Ave connection to Market stays intact Covil Ave is a long street still, but cul-de-sac'd
	Cons	Impacts Beaumont Park Access Parcel Unexpected corridor for the public S-curve coming off of Randall Pkwy intersection Alignment runs down the center of WHA parcel Very long bridge at PP/RR	Mercer Ave is taken/closed 31st St is taken/closed Montgomery Ave & Evans St are cul-de-sac'd	Darlington Ave and Colvil Ave are cul-de-sac'd Mercer Ave is taken/closed 31st St is taken/closed Evans St is cul-de-sac'd	30th Street is Re-routed to the West onto 29th St 31st St is taken/closed	Mercer Ave is taken/closed Wayne Dr (west of Mercer) is cul-de-sac'd Quad B problems w/ neighborhood access to Market St
5	Pros		Darlington Ave connection to Market stays intact	Darlington Ave connection to Market stays intact Mercer Ave connection to Market St stays intact		
	Cons	S-curve in Section B and at Section B/C interface	Mercer Ave is cul-de-sac'd Evans St is taken/closed Clay & 31st Streets are cul-de-sac'd	Evans St is taken/closed Clay & 31st Streets are cul-de-sac'd	Darlington Ave is Re-Routed to Market St 31st St is cul-de-sac'd	Darlington Ave is Re-Routed to Market St Mercer Ave is cul-de-sac'd
6	Pros		Darlington Ave connection to Market stays intact			
	Cons	Does NOT abut east side of WHA parcel (uneconomic remnant) Mid-Length bridge at PP/RR	Mercer Ave is cul-de-sac'd Covil Ave is shortened and cul-de-sac'd 31st St is taken/closed Evans & Clay Streets are cul-de-sac'd	Mercer Ave is cul-de-sac'd Covil Ave is cul-de-sac'd 31st St is taken/closed Evans St is cul-de-sac'd	Darlington Ave is Re-Routed to Market St 31st St is cul-de-sac'd	Darlington Ave is Re-Routed to Market St Mercer Ave is cul-de-sac'd
7	Pros	VERY straight alignment for project length Alignment runs "between blocks" Short-to-mid length bridge at PP/RR LOWEST res/bus impacts of any alternative	Darlington Ave connection to Market stays intact	Darlington Ave connection to Market stays intact		
	Cons	Does NOT abut east side of WHA parcel (uneconomic remnant)	Mercer Ave is cul-de-sac'd Covil Ave is shortened and cul-de-sac'd 31st St is taken/closed Evans & Clay Streets are cul-de-sac'd	Mercer Ave is cul-de-sac'd Covil Ave is cul-de-sac'd 31st St is taken/closed Evans and Clay Streets are cul-de-sac'd	Darlington Ave is Re-Routed to Market St Covil Ave is shorter and cul-de-sac'd 31st St is cul-de-sac'd	Darlington Ave is Re-routed to Market St Mercer Ave is cul-de-sac'd Covil Ave is shortened and cul-de-sac'd
8	Pros	Abuts WEST side of WHA parcel (can either be good or bad....?) VERY LOW res/bus impacts	Darlington Ave connection to Market stays intact	Darlington Ave connection to Market stays intact		Darlington Ave connection to Market stays intact Covil Ave is a long street still, but cul-de-sac'd
	Cons	Takes 2 Churches in Section A (only alt that does so) Very curvy alignment. A MAJOR S-curve occurs in Section A Impacts Beaumont Park Access parcel Very long bridge at PP/RR	North half of Mercer Ave is taken; re-routed to west 30th and 31st Streets are taken/closed Montgomery Ave & Evans St are cul-de-sac'd	North half of Mercer Ave is taken; re-routed to west 30th St is cul-de-sac'd; traffic must move west to 29th Covil Ave is cul-de-sac'd. 31st St is taken/closed. Montgomery Ave & Evans St are cul-de-sac'd	30th Street is Re-routed to the West onto 29th St	Mercer Ave is cul-de-sac'd Wayne Dr (west of Mercer) is cul-de-sac'd Quad B problems w/ neighborhood access to Market St Montgomery Ave is cul-de-sac'd
		General Comments: Later as retaining walls are considered, alignments may shift slightly as impacts are considered for avoidance/minimization. If selected for further study, Alt #8 offers the ability to straighten S-curve based on parcel takes.				

Alternative		Alignment (Itself)	TUDI	Quad AC	Quad BC
1 (Blue)	Pros	<ul style="list-style-type: none"> • Short Bridge at Princess/Railroad 	<ul style="list-style-type: none"> • Darlington remains open 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
	Cons	<ul style="list-style-type: none"> • Large area of landlocked property • Impacts to 4 blocks north of Market Street • 4 Relocations in Section C • Conflicts with Power line 	<ul style="list-style-type: none"> • Mercer cul-de-sac 	<ul style="list-style-type: none"> • Darlington Re-routed to Market Street 	<ul style="list-style-type: none"> • Darlington Re-routed to Market Street • Mercer cul-de-sac
2 (Green)	Pros	<ul style="list-style-type: none"> • No relocations in Section C • Impacts to 3 blocks north of Market Street (Better than Alt. 1,3,5) • No conflict with power line 	<ul style="list-style-type: none"> • Darlington remains open 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
	Cons	<ul style="list-style-type: none"> • Large area of landlocked property • Larger area taken from WHA parcel 	<ul style="list-style-type: none"> • Mercer cul-de-sac • Additional takes along west side of N. 31st Street (would require retaining walls) 	<ul style="list-style-type: none"> • Darlington Re-routed to Market Street 	<ul style="list-style-type: none"> • Darlington Re-routed to Market Street • Mercer cul-de-sac
3 (Purple)	Pros	<ul style="list-style-type: none"> • Short Bridge at Princess/Railroad • Leaves largest developable area for WHA parcel • Only alternative with no church impacts (however requires back access from Mercer) 	<ul style="list-style-type: none"> • Mercer and Darlington remain open 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
	Cons	<ul style="list-style-type: none"> • Large area of landlocked property • Takes WHA Jervay Development • Takes 24-unit Apartment Building and parking for 2 other 24-unit buildings • 9 relocations in Section C • Conflicts with power line • Impacts to 4 blocks north of Market Street 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Darlington Re-routed to Market Street 	<ul style="list-style-type: none"> • Darlington Re-routed to Market Street • Mercer cul-de-sac
4 (Teal)	Pros	<ul style="list-style-type: none"> • Avoids impact to group home • Fewer impacts between Market Street and Princess Place • Fewer business relocations than eastern alignments 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Darlington remains open 	<ul style="list-style-type: none"> • Darlington remains open
	Cons	<ul style="list-style-type: none"> • Large area of landlocked property • Largest Impact to area between Darlington and Market Street • Impact to Park access (potential 4(f) impact) • Longer bridge at Princess/Railroad • Splits WHA parcel down the middle leaving it essentially undevelopable • Higher stream impacts than eastern alignments 	<ul style="list-style-type: none"> • Covil Cul-de-sac • Mercer closed 	<ul style="list-style-type: none"> • 30th Street cul-de-sac – requires re-routing to 3029th street 	<ul style="list-style-type: none"> • Mercer cul-de-sac – requires re-routing to Colonial Drive

Alternative		Alignment (Itself)	TUDI	Quad AC	Quad BC
5 (Orange)	Pros	<ul style="list-style-type: none"> Area crossed between Market Street and Princess place is less dense Short bridge at Princess/Railroad 	<ul style="list-style-type: none"> Mercer and Darlington remain open 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
	Cons	<ul style="list-style-type: none"> Large area of landlocked property Impacts to 4 blocks north of Market Street 2 Relocations in Section C Conflicts with Power line 	<ul style="list-style-type: none"> Impacts 5th block north of Market Street 	<ul style="list-style-type: none"> Darlington Re-routed to Market Street 	<ul style="list-style-type: none"> Darlington Re-routed to Market Street Mercer cul-de-sac
6 (Cyan)	Pros	<ul style="list-style-type: none"> Least (along with Alt. 7) area of landlocked property Avoids power line No impacts in Section C Impacts between Market and Princess contained to 3 blocks Maintains access to portion of Covil Avenue (however less than Alt. 7) 	<ul style="list-style-type: none"> Darlington remains open 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
	Cons	<ul style="list-style-type: none"> Larger area taken from WHA parcel Higher total number of relocations 	<ul style="list-style-type: none"> Mercer cul-de-sac Impacts 5th block north of Market Street 	<ul style="list-style-type: none"> Darlington Re-routed to Market Street 	<ul style="list-style-type: none">
7 (Dark Red)	Pros	<ul style="list-style-type: none"> Least (along with Alt. 6) area of landlocked property Avoids power line No impacts in Section C Impacts between Market and Princess contained to 3 blocks Maintains access to portion of Covil Avenue (better than Alt. 6) 	<ul style="list-style-type: none"> Darlington remains open 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
	Cons	<ul style="list-style-type: none"> Larger area taken from WHA parcel 	<ul style="list-style-type: none"> Mercer cul-de-sac Impacts 5th block north of Market Street (retaining walls needed to avoid impacts) 	<ul style="list-style-type: none"> Darlington Re-routed to Market Street 	<ul style="list-style-type: none">
8 (Navy Blue)	Pros	<ul style="list-style-type: none"> Fewest impacts between Market and Princess Fewest Business relocations Maintains Covil Avenue and substantial portion of Mercer Avenue 	<ul style="list-style-type: none"> Darlington remains open 	<ul style="list-style-type: none"> Darlington remains open 	<ul style="list-style-type: none"> Darlington remains open
	Cons	<ul style="list-style-type: none"> Highest stream impacts Impacts more churches (2) than other alignments Long Bridge at Princess/Railroad Creates barrier between WHA development and existing Creekside Development Impacts Park access parcel (however, connection could be made due to relocations) 	<ul style="list-style-type: none"> Covil Cul-de-sac Cuts access to park 30th Street Cul-de-sac – rerouted to 29th street 	<ul style="list-style-type: none"> 30th Street Cul-de-sac – rerouted to 29th street 	<ul style="list-style-type: none">

PRELIMINARY PLANS
SUBJECT TO CHANGE WITHOUT NOTICE
DATE PRINTED: 10/20/11
PREPARED BY: URS
SCALE: 1" = 200'

STIP PROJECT U-4434
INDEPENDENCE
BOULEVARD
EXTENSION

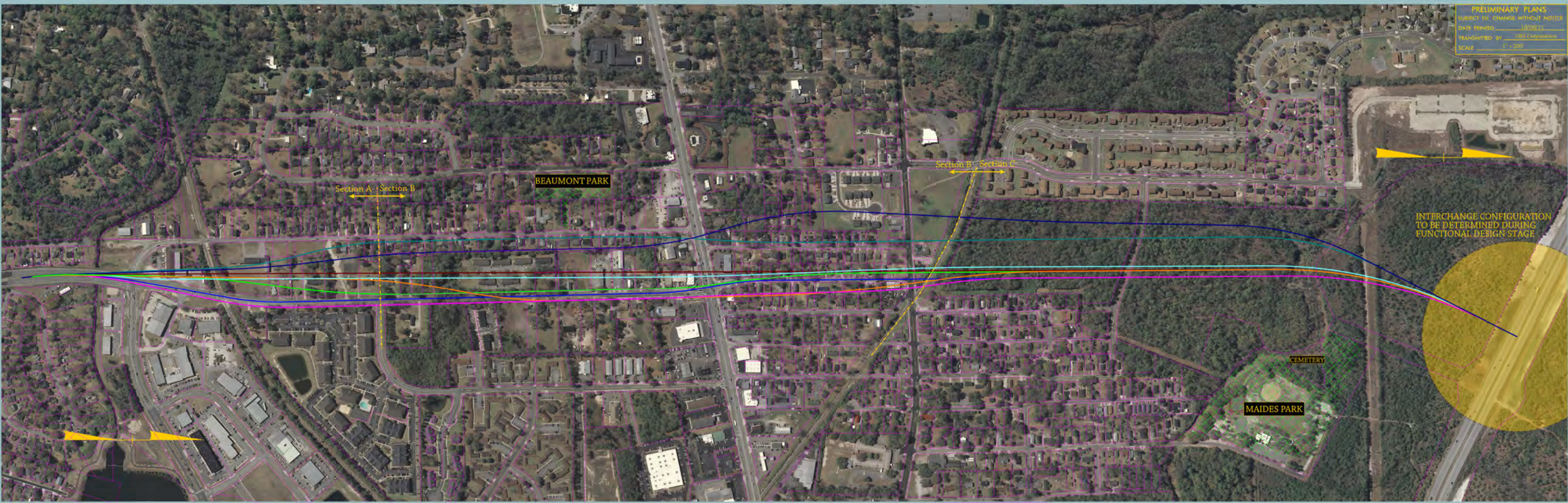
CONCEPT CENTERLINES

LEGEND

- ALTERNATIVE 1
- ALTERNATIVE 2
- ALTERNATIVE 3
- ALTERNATIVE 4
- ALTERNATIVE 5
- ALTERNATIVE 6
- ALTERNATIVE 7
- ALTERNATIVE 8



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& TRAVEL DEVELOPMENT
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OCTOBER 2011



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 BOULEVARD
 EXTENSION

CONCEPT CENTERLINES

LEGEND

- WETLAND
- STREAM

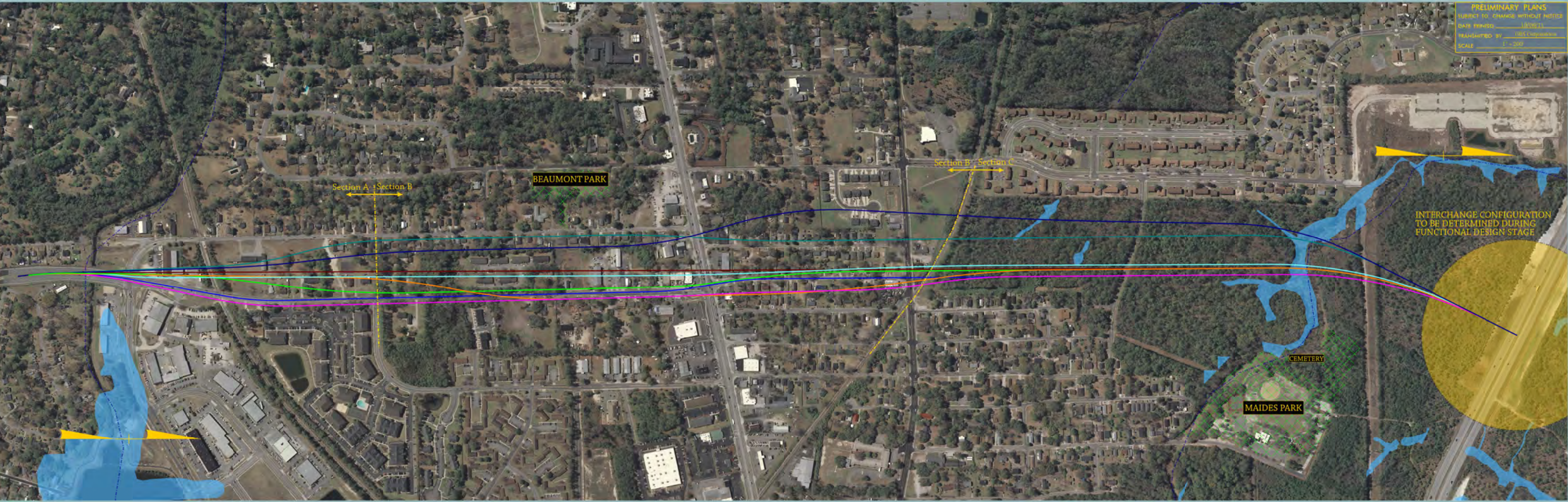
- ALTERNATIVE 1
- ALTERNATIVE 2
- ALTERNATIVE 3
- ALTERNATIVE 4
- ALTERNATIVE 5
- ALTERNATIVE 6
- ALTERNATIVE 7
- ALTERNATIVE 8



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 & TRAVEL DEVELOPMENT

URS OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



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STIP PROJECT U-4434
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CONCEPT ALTERNATIVE 1

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PAV. HEIGHT

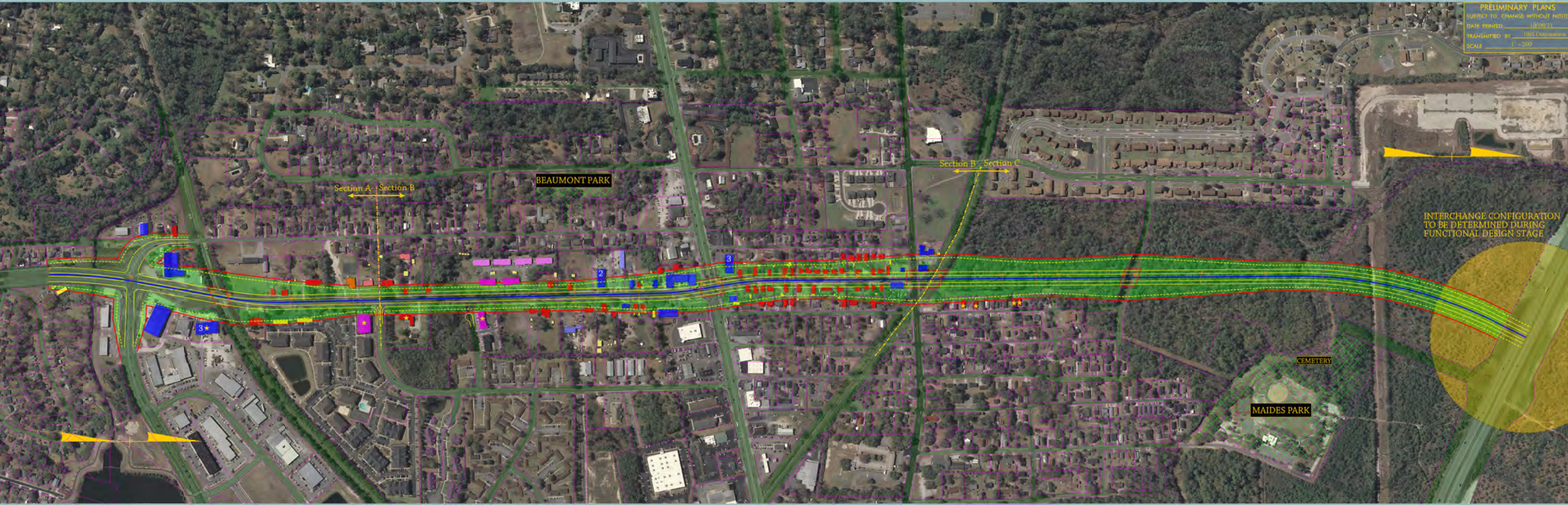
RELOCATIONS

- | | |
|-----------------------------|----------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # No. of Under-Businesses | |
| ★ Potential for Avoidance | |



URS | OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE REVISED: 10/20/11
 PREPARED BY: J. J. [unreadable]
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 2

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PAV. HEIGHT

RELOCATIONS

- | | |
|---------------|---------------------------|
| Direct Impact | Loss of Access |
| [Red Box] | Single Family Residential |
| [Blue Box] | Commercial |
| [Purple Box] | Multi-Family Residential |
| [Orange Box] | Church |
| [Yellow Box] | Accessory Structure |
| # | No. of Under-Businesses |
| ★ | Potential for Avoidance |

200' 0' 200' 400'

PREPARED FOR:
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 & TRAFFIC ENGINEERING CENTER

URS OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 2

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PILL HEIGHT

RELOCATIONS

- | | |
|-----------------------------|----------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # No. of Under-Buildings | |
| ★ Potential for Avoidance | |



URS OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE REVISED: 10/20/11
 REVISIONS BY: [Signature]
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 3

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- - - ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PILL HEIGHT

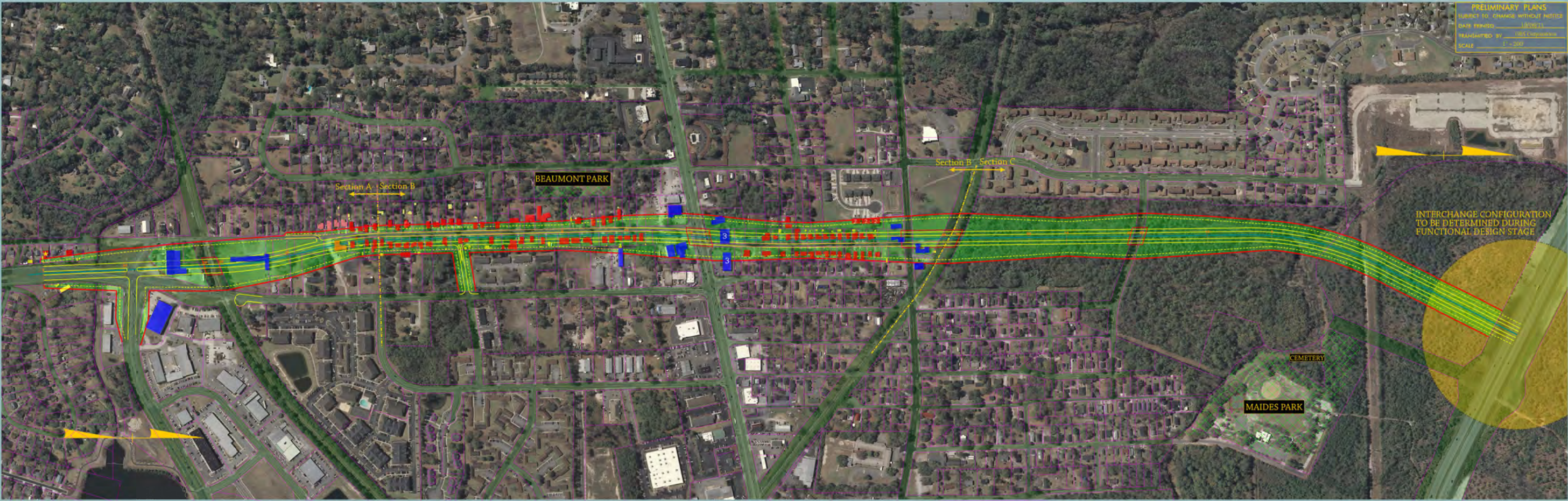
RELOCATIONS

- | | |
|---------------|---------------------------|
| Direct Impact | Loss of Access |
| [Red Box] | Single Family Residential |
| [Blue Box] | Commercial |
| [Purple Box] | Multi-Family Residential |
| [Orange Box] | Church |
| [Yellow Box] | Accessory Structure |
| # | No. of Under-Businesses |
| ★ | Potential for Avoidance |

200' 0' 200' 400'

FOR THE NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 & AIRPORTS

URS OCTOBER 2011



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 5

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PILL HEIGHT

RELOCATIONS

- | | |
|-----------------------------|----------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # No. of Under-Buildings | |
| ★ Potential for Avoidance | |



PREPARED FOR:
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 & TRAVEL DEVELOPMENT

URS OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 400'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE A

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED FILL HEIGHT

RELOCATIONS

- | | |
|-----------------------------|---------------------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | ■ No. of Under-Businesses |
| ★ Potential for Avoidance | |

200' 0' 200' 400'

PROVISED FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION & TRAVEL ENERGY CENTER

URS OCT0609 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE

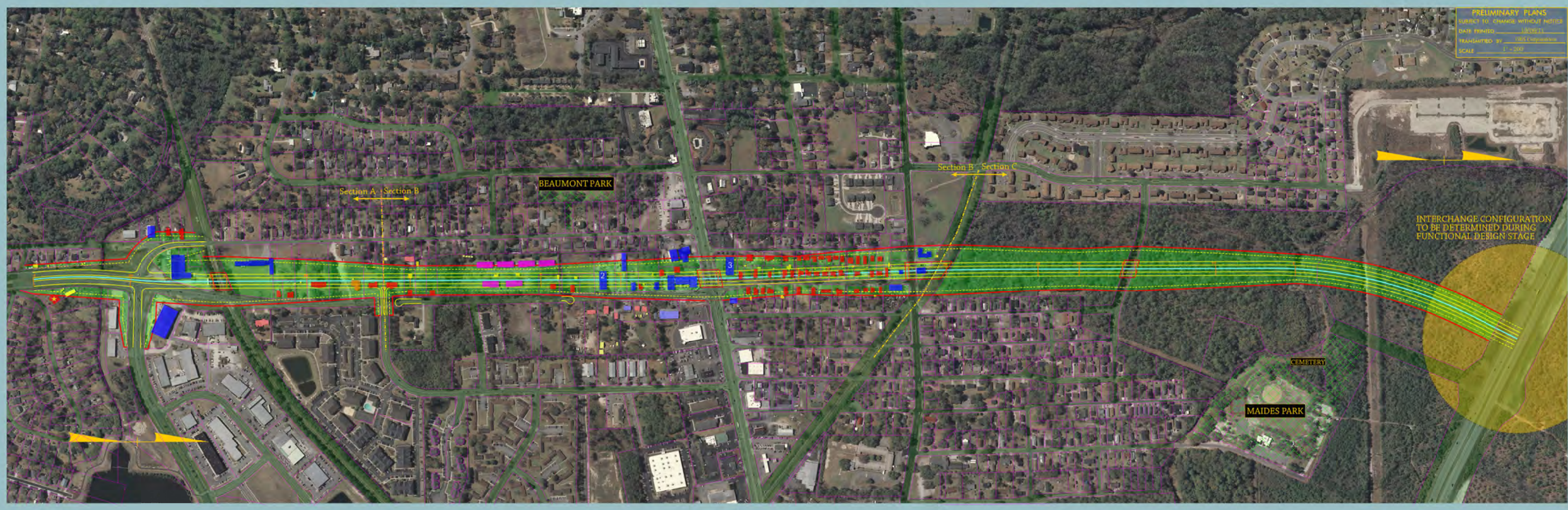
Section B, Section C

Section A, Section B

BEAUMONT PARK

CEMETERY

MAIDES PARK



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 7

LEGEND

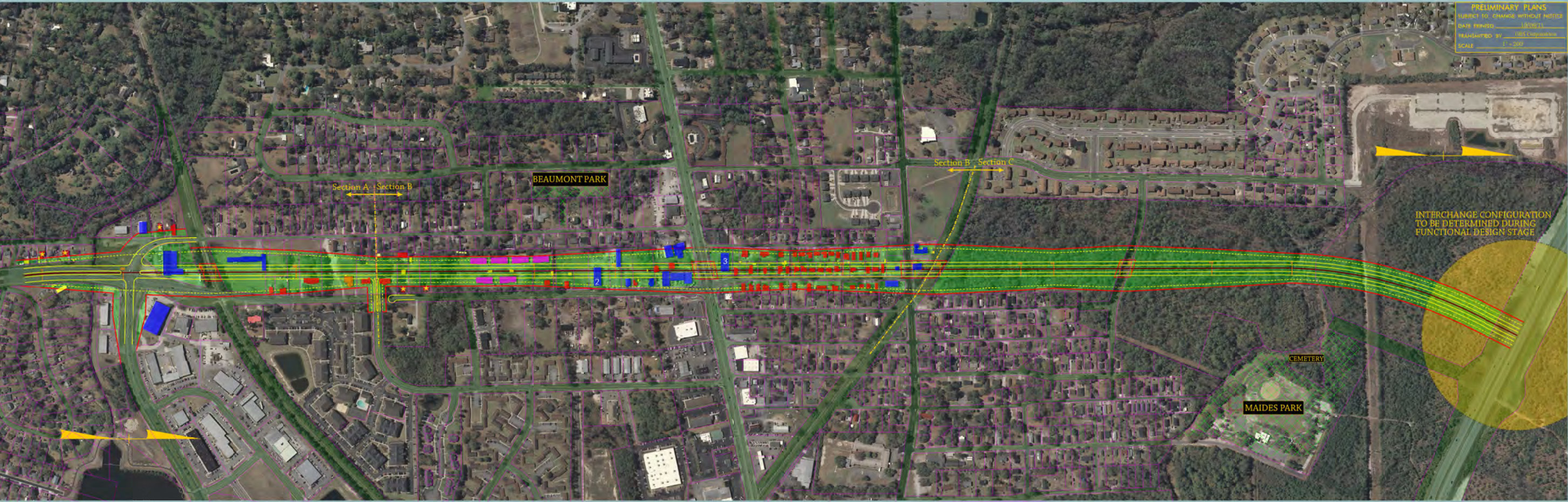
- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PILL HEIGHT

RELOCATIONS

- | | |
|-----------------------------|-------------------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # | No. of Under-Businesses |
| ★ | Potential for Avoidance |



INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE REVISED: 10/2011
 PREPARED BY: URS
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE B

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PILL HEIGHT

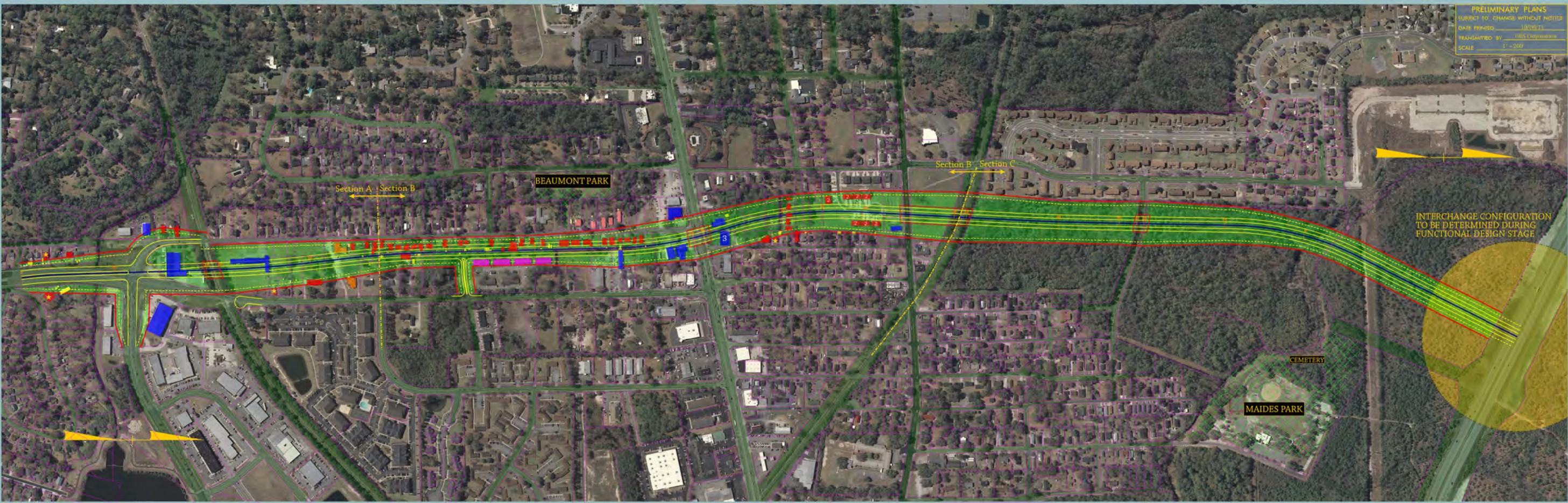
RELOCATIONS

- | | |
|-----------------------------|----------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # No. of Under-Businesses | |
| ★ Potential for Avoidance | |

200' 0' 200' 400'

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 & TRAVEL DEVELOPMENT

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PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 1
 Market St. - Tight Urban
 Diamond Interchange

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- - - ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PILL HEIGHT

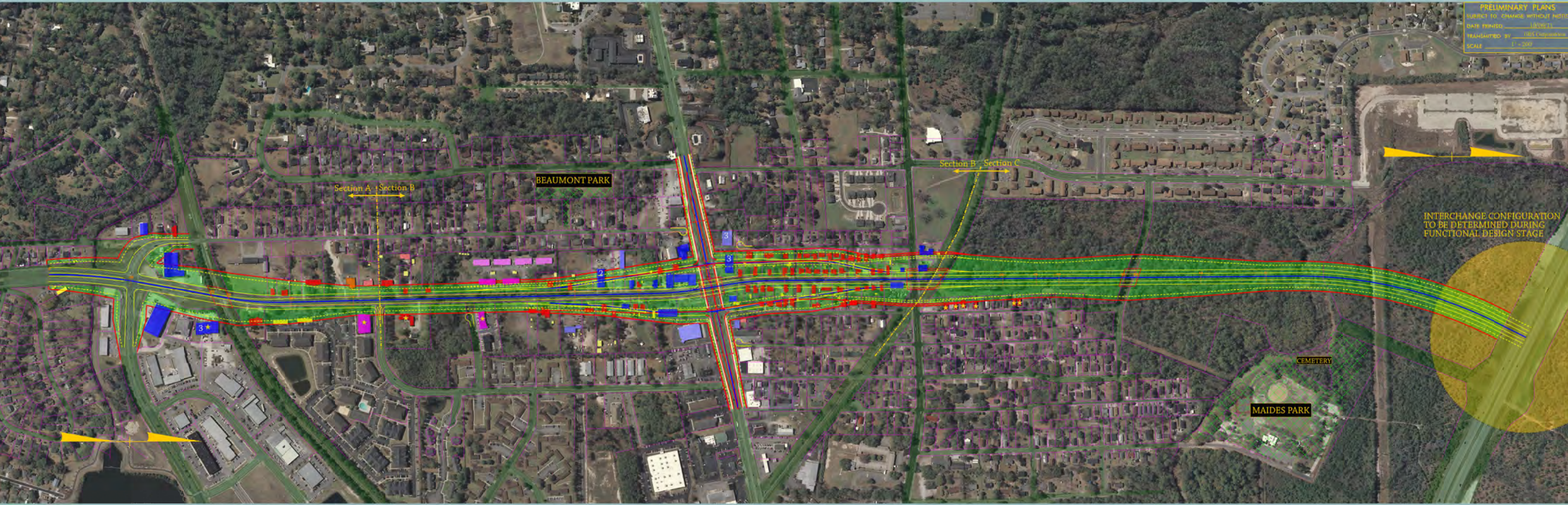
RELOCATIONS

- | | |
|-----------------------------|---------------------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | ■ No. of Under-Businesses |
| ★ Potential for Avoidance | |



URS
 OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 2
 Marble St. - Tight Urban
 Diamond Interchange

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- - - ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PILL HEIGHT

RELOCATIONS

- | | |
|-----------------------------|----------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # No. of Under-Businesses | |
| ★ Potential for Avoidance | |

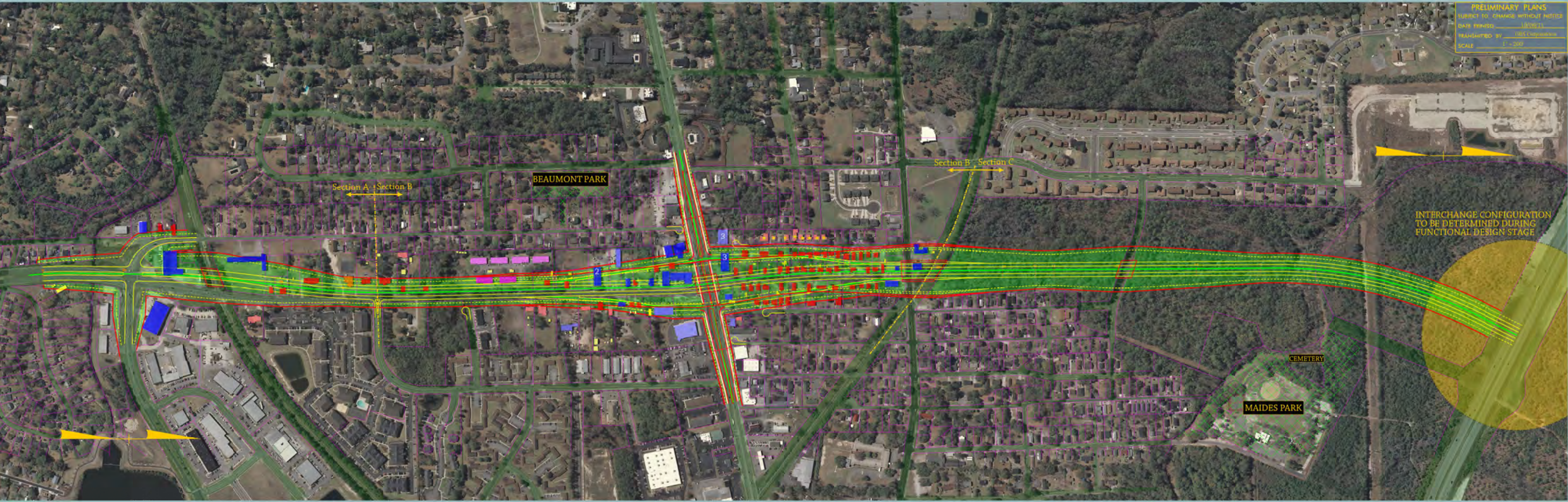


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URS

OCT0809 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 3
 Market St. - Tight Urban
 Diamond Interchange

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- - - ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PILL HEIGHT

RELOCATIONS

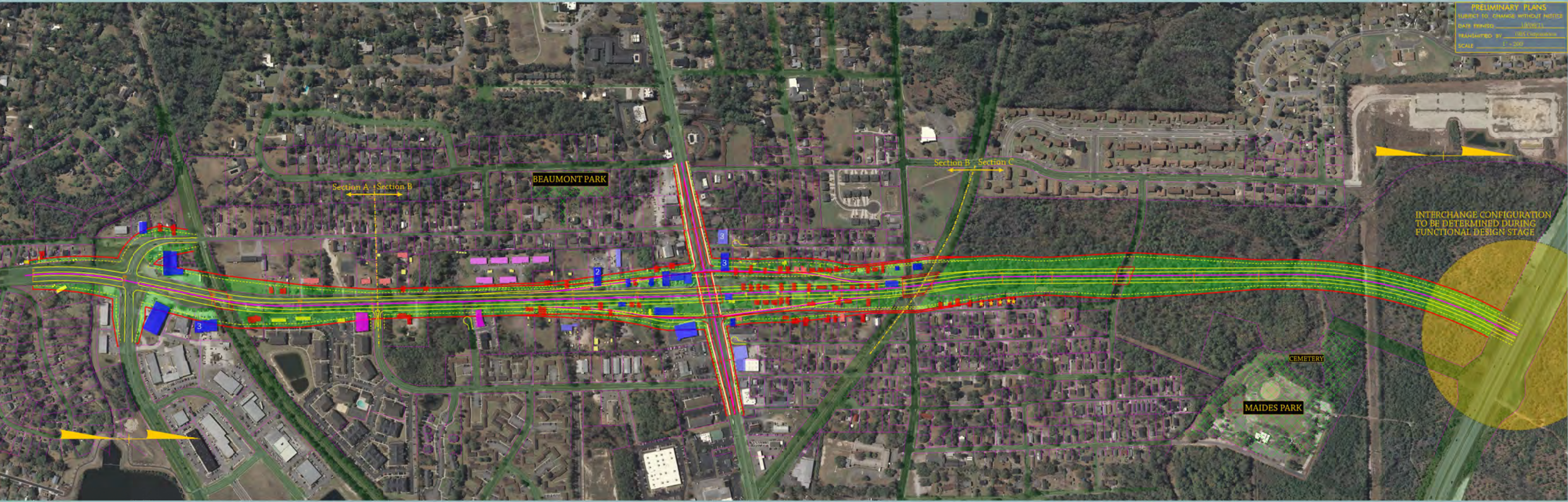
- | | |
|-----------------------------|----------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # No. of Under-Businesses | |
| ★ Potential for Avoidance | |

200' 0' 200' 400'

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INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 4
 Marker St. - Tight Urban
 Diamond Interchange

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- - - ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PAV. HEIGHT

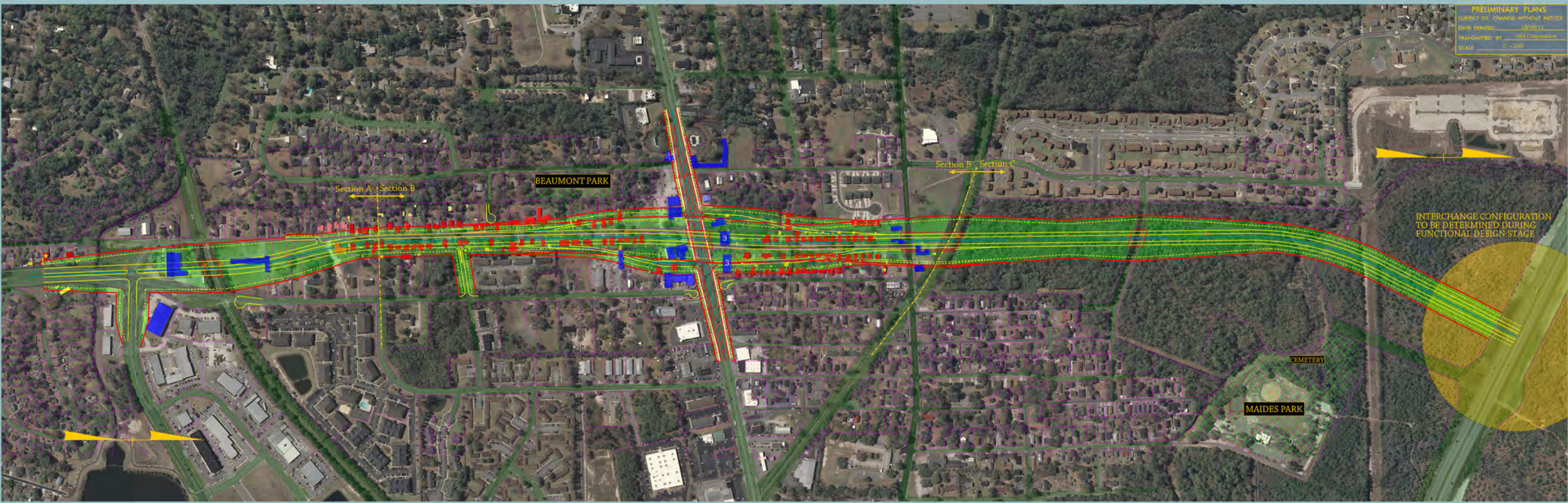
RELOCATIONS

- | | |
|-----------------------------|----------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # No. of Under-Businesses | |
| ★ Potential for Avoidance | |

200' 0' 200' 400'

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 DEPARTMENT OF TRANSPORTATION
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OCTOBER 2011



INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE

PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 5
 Malet St. - Tight Urban
 Diamond Interchange

LEGEND

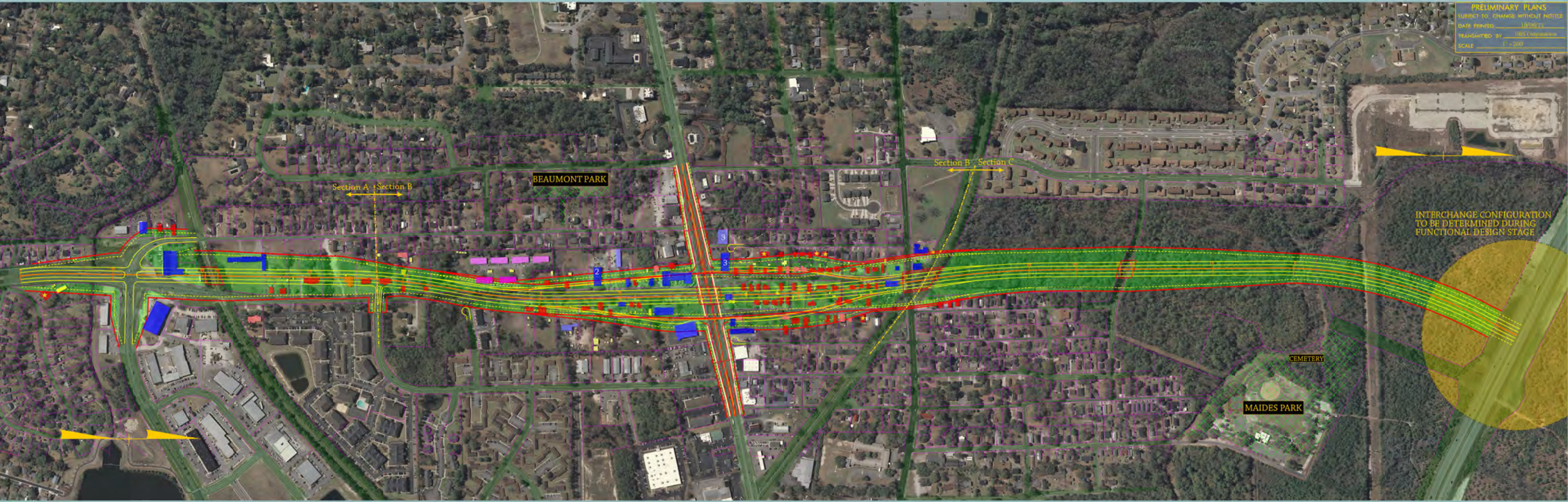
- CENTERLINE
- EDGE OF TRAVEL WAY
- - - ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PILL HEIGHT

RELOCATIONS

- | | |
|-----------------------------|----------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # No. of Under-Businesses | |
| ★ Potential for Avoidance | |



INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 100'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

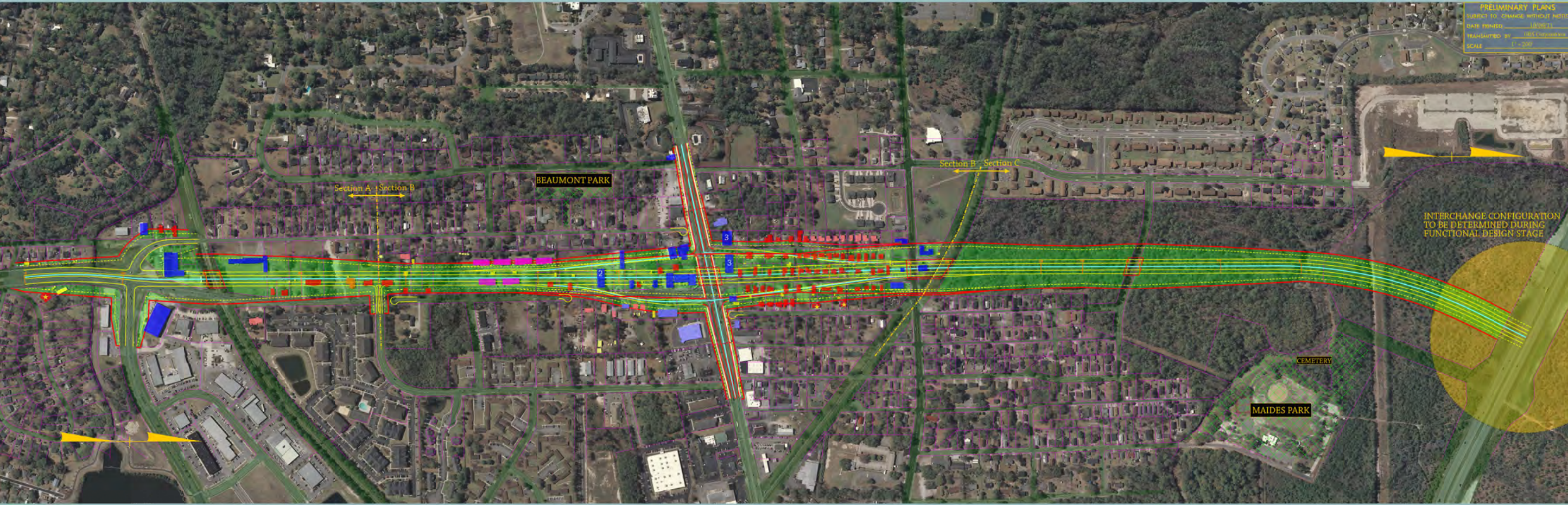
CONCEPT ALTERNATIVE 6
 Market St - Tight Urban
 Diamond Interchange

LEGEND
 CENTERLINE
 EDGE OF TRAVEL WAY
 ESTIMATED SLOPE STAKE
 RIGHT-OF-WAY LIMIT
 EXISTING RIGHT-OF-WAY
 PROPOSED RIGHT-OF-WAY
 ASSIGNED PILL HEIGHT

RELOCATIONS
 Direct Impact
 Loss of Access
 Single Family Residential
 Commercial
 Multi-Family Residential
 Church
 Accessory Structure
 # No. of Under-Businesses
 ★ Potential for Avoidance

200' 0' 200' 400'
 URS
 OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 7
 Market St. - Tight Urban
 Diamond Interchange

- LEGEND
- CENTERLINE
 - EDGE OF TRAVEL WAY
 - - - ESTIMATED SLOPE STAKE
 - RIGHT-OF-WAY LIMIT
 - EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - ↑ ASSIGNED PILL HEIGHT

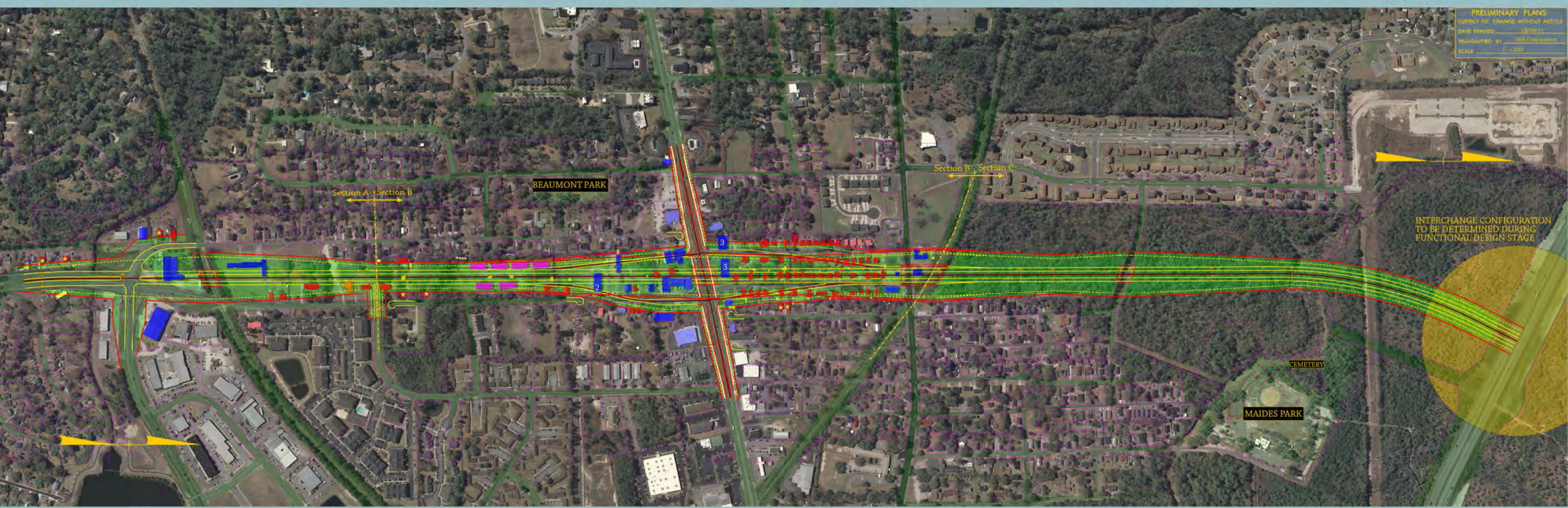
- RELOCATIONS
- | Direct Impact | Loss of Access |
|---------------|---------------------------|
| Red | Single Family Residential |
| Blue | Commercial |
| Purple | Multi-Family Residential |
| Orange | Church |
| Yellow | Accessory Structure |
| # | No. of Under-Businesses |
| ★ | Potential for Avoidance |

200' 0' 200' 400'

PREPARED FOR:
 NORTH CAROLINA
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 & TRAVEL DEVELOPMENT

URS OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE REVISED: 10/20/11
 REVISIONS BY: [illegible]
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 8
 Marklar St. - Tight Urban
 Diamond Interchange

LEGEND


- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PILL HEIGHT

RELOCATIONS

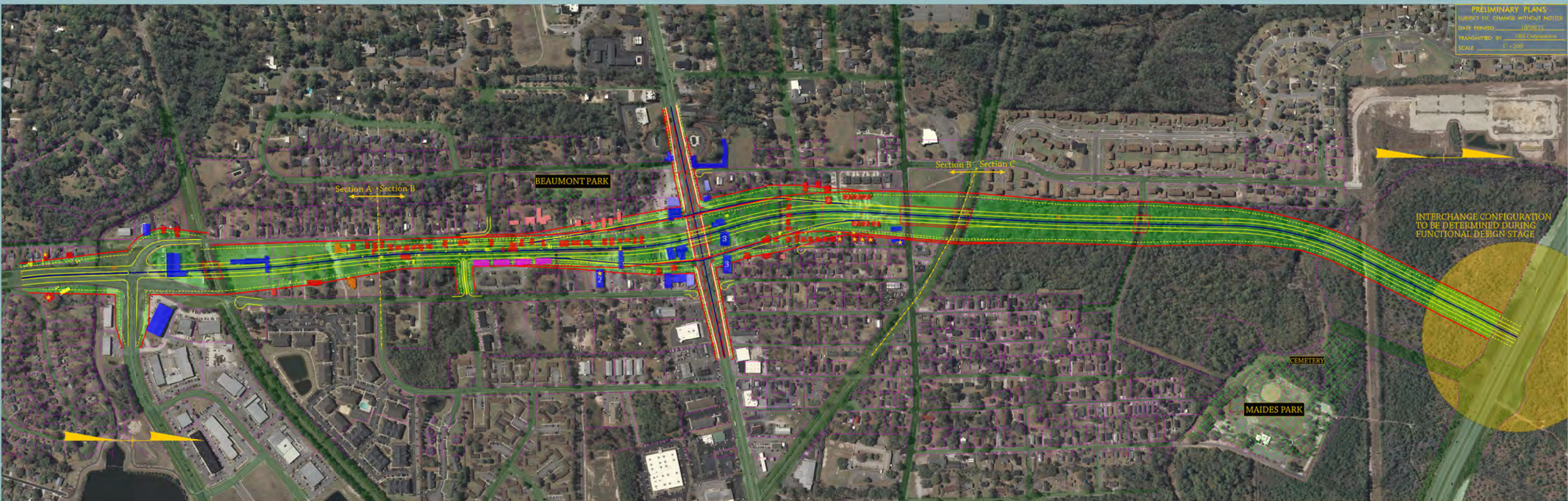
- | | |
|---------------|---------------------------|
| Direct Impact | Loss of Access |
| [Red Box] | Single Family Residential |
| [Blue Box] | Commercial |
| [Purple Box] | Multi-Family Residential |
| [Orange Box] | Church |
| [Yellow Box] | Accessory Structure |
| # | No. of Under-Businesses |
| ★ | Potential for Avoidance |



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 & TRAVEL ENERGY CENTER



OCTOBER 2011



PRELIMINARY PLANS
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 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 1
 Market St. - Diverging
 Diamond Interchange

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PILL HEIGHT

RELOCATIONS

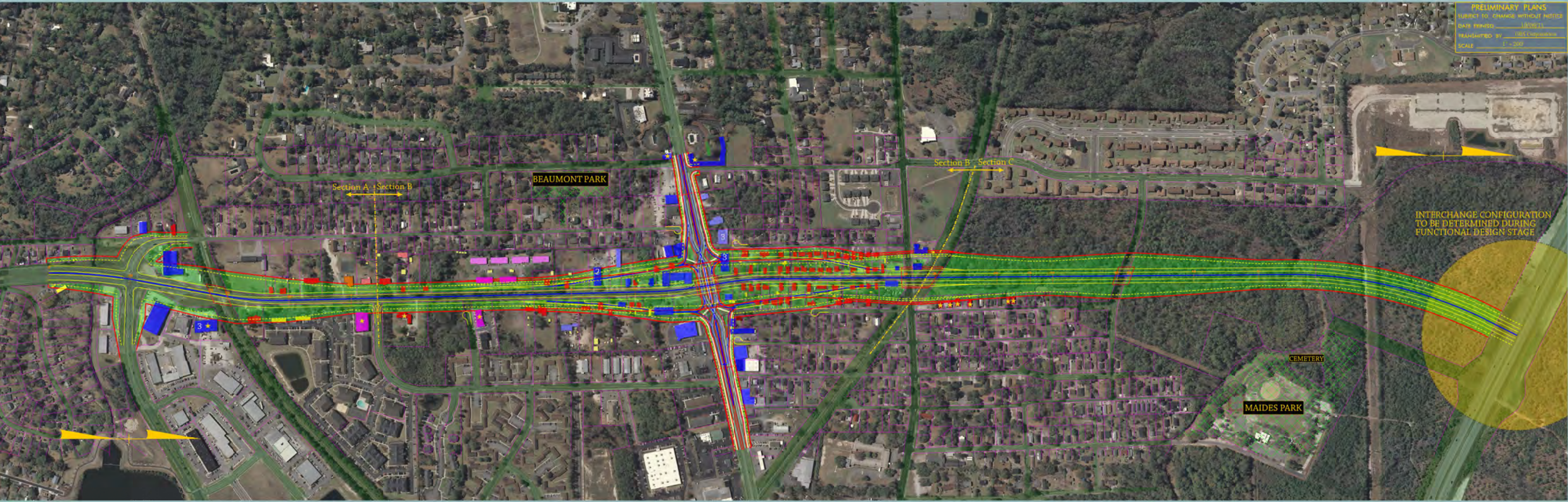
- | | |
|-----------------------------|----------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # No. of Under-Businesses | |
| ★ Potential for Avoidance | |

200' 0' 200' 400'

PREPARED FOR:
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 DEPARTMENT OF TRANSPORTATION
 & TRAVEL ENERGY CENTER

OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 2
 Market St. - Diverging
 Diamond Interchange

- LEGEND
- CENTERLINE
 - EDGE OF TRAVEL WAY
 - ESTIMATED SLOPE STAKE
 - RIGHT-OF-WAY LIMIT
 - EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - ↑ ASSIGNED PILL HEIGHT

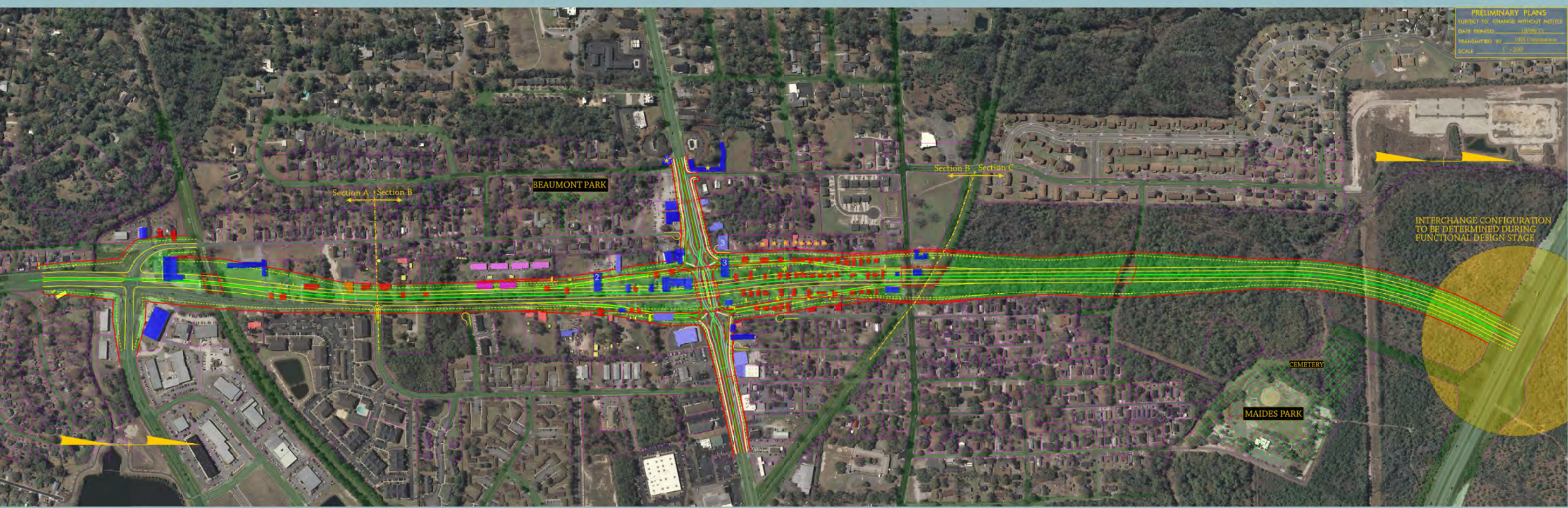
- RELOCATIONS
- | | |
|-----------------------------|---------------------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | # No. of Under-Businesses |
| ★ Potential for Avoidance | |

200' 0' 200' 400'

PREPARED FOR:
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 & TRAVEL DEVELOPMENT

URS OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE REVISED: 10/20/11
 REVISIONS BY: [Signature]
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 3

Market St - Diverging
 Diamond Interchange

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ASSIGNED PAVEMENT HEIGHT

RELOCATIONS

- | | |
|---------------|---------------------------|
| Direct Impact | Loss of Access |
| | Single Family Residential |
| | Commercial |
| | Multi-Family Residential |
| | Church |
| | Accessory Structure |
| # | No. of Under-Businesses |
| | Potential for Avoidance |

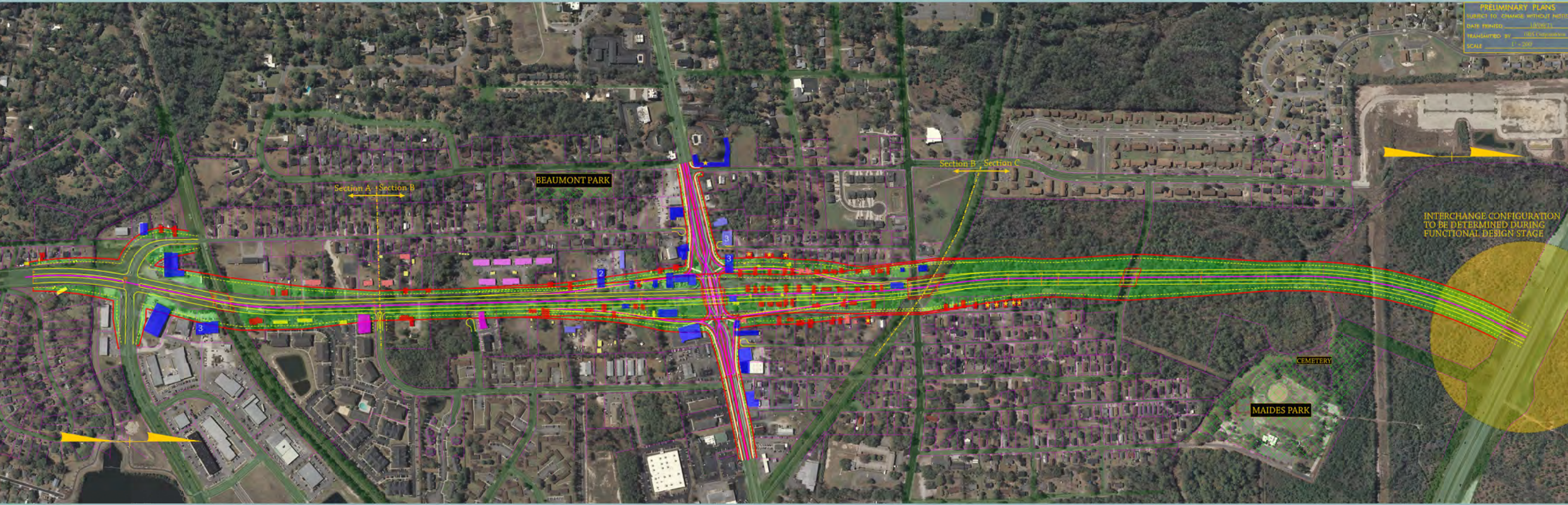
200' 0' 200' 400'

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 DEPARTMENT OF TRANSPORTATION
 & TRAVEL DEVELOPMENT



URS
 OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 4
 Maabey St. - Diverging
 Diamond Interchange

LEGEND

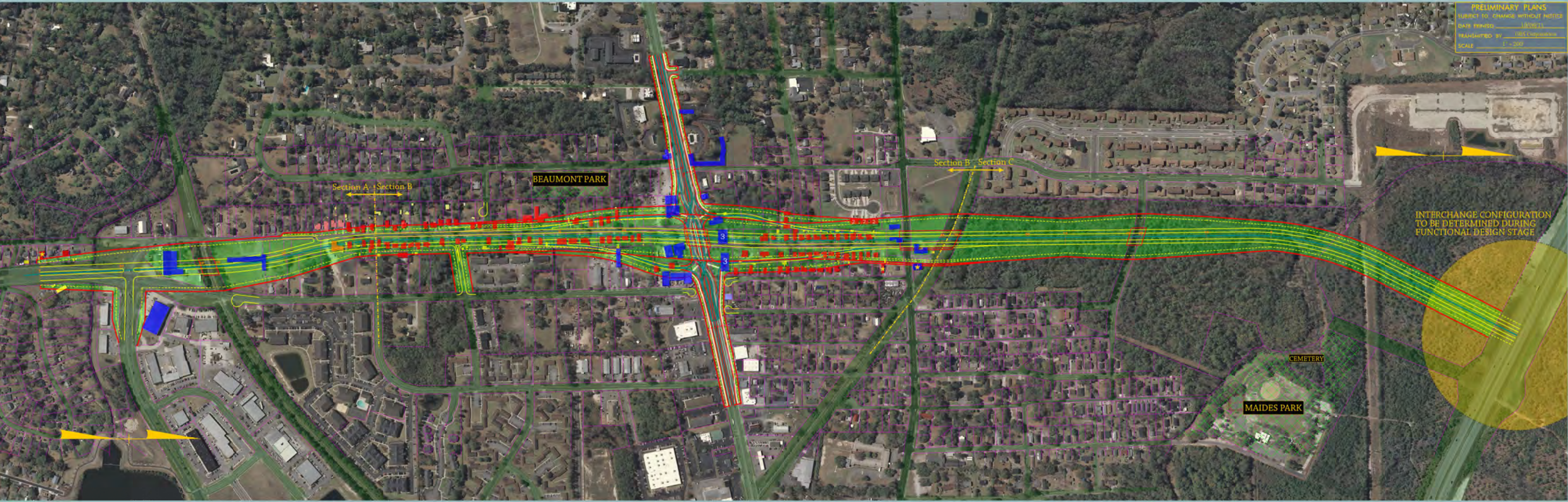
- CENTERLINE
- EDGE OF TRAVEL WAY
- - - ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PAV. HEIGHT

RELOCATIONS

- | | |
|-----------------------------|----------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # No. of Under-Businesses | |
| ★ Potential for Avoidance | |



INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 5
 Marker St. - Diverging
 Diamond Interchanges

- LEGEND
- CENTERLINE
 - EDGE OF TRAVEL WAY
 - - - ESTIMATED SLOPE STAKE
 - RIGHT-OF-WAY LIMIT
 - EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - ↑ ASSIGNED PVI HEIGHT

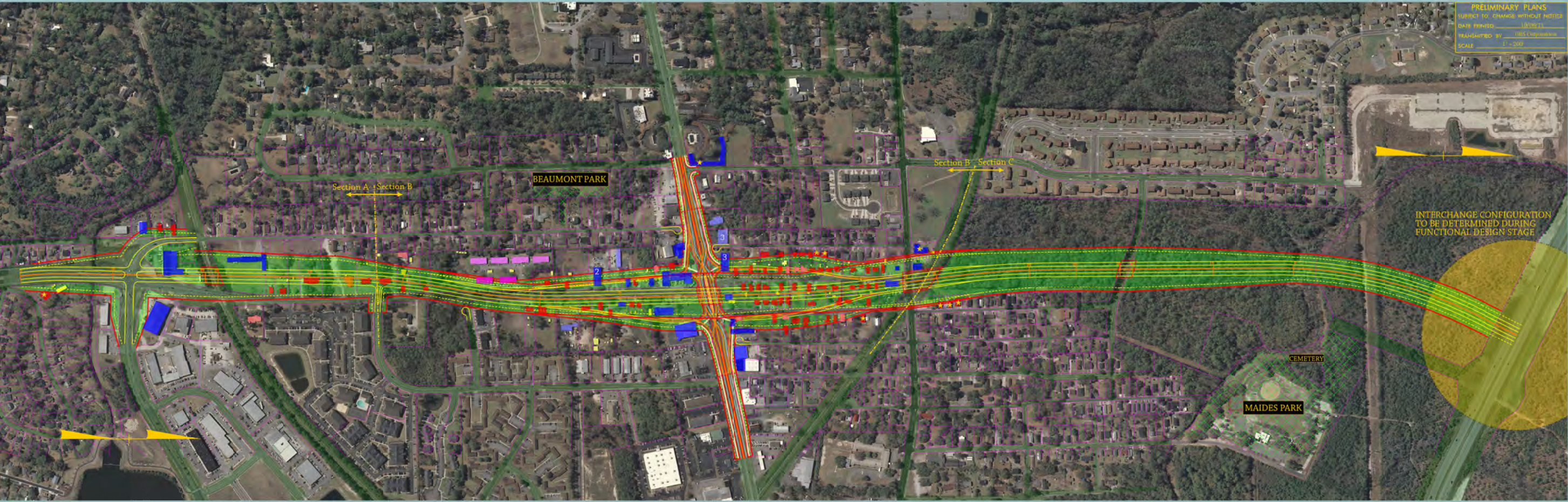
- RELOCATIONS
- | | |
|-----------------------------|-------------------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # | No. of Under-Businesses |
| ★ | Potential for Avoidance |

200' 0' 200' 400'

PREPARED FOR:
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 & AIRPORTS/AVIATION

URS OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PREPARED: 10/2011
 PREPARED BY: URS
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 6
 Market St. - Diverging
 Diamond Interchange

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- - - ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PILL HEIGHT

RELOCATIONS

- | | |
|-----------------------------|----------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # No. of Under-Businesses | |
| ★ Potential for Avoidance | |

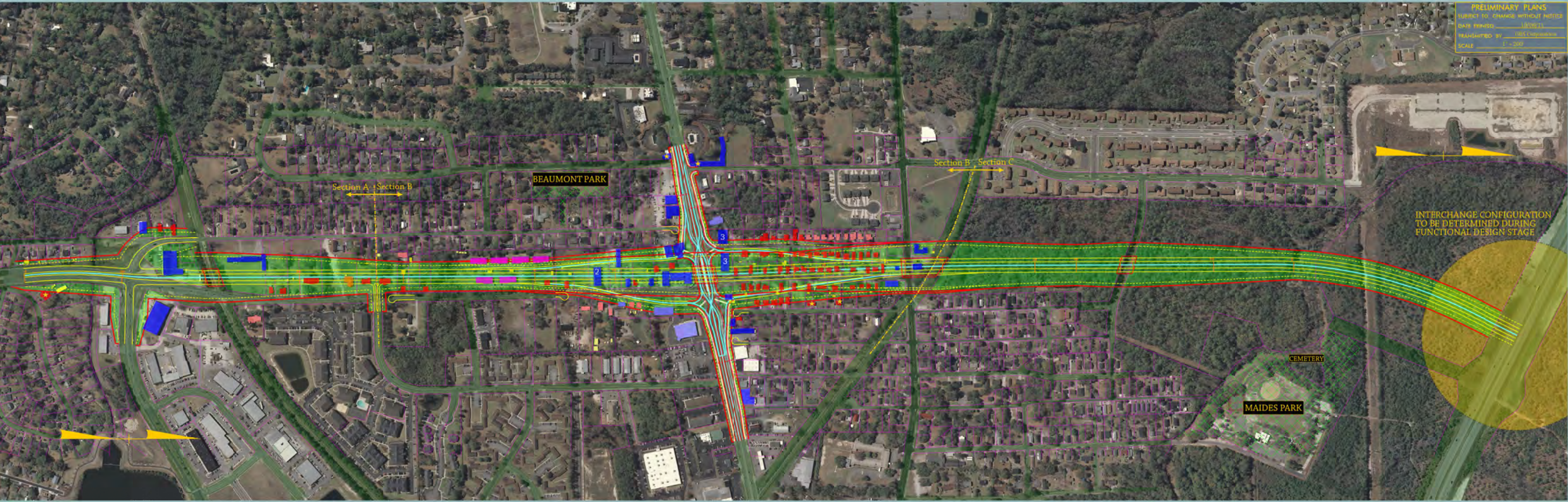


PREPARED FOR:
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 & TRAVEL DEVELOPMENT



OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 7
 Market St. - Diverging
 Diamond Interchange

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PVI HEIGHT

RELOCATIONS

- | | |
|-----------------------------|----------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # No. of Under-Businesses | |
| ★ Potential for Avoidance | |

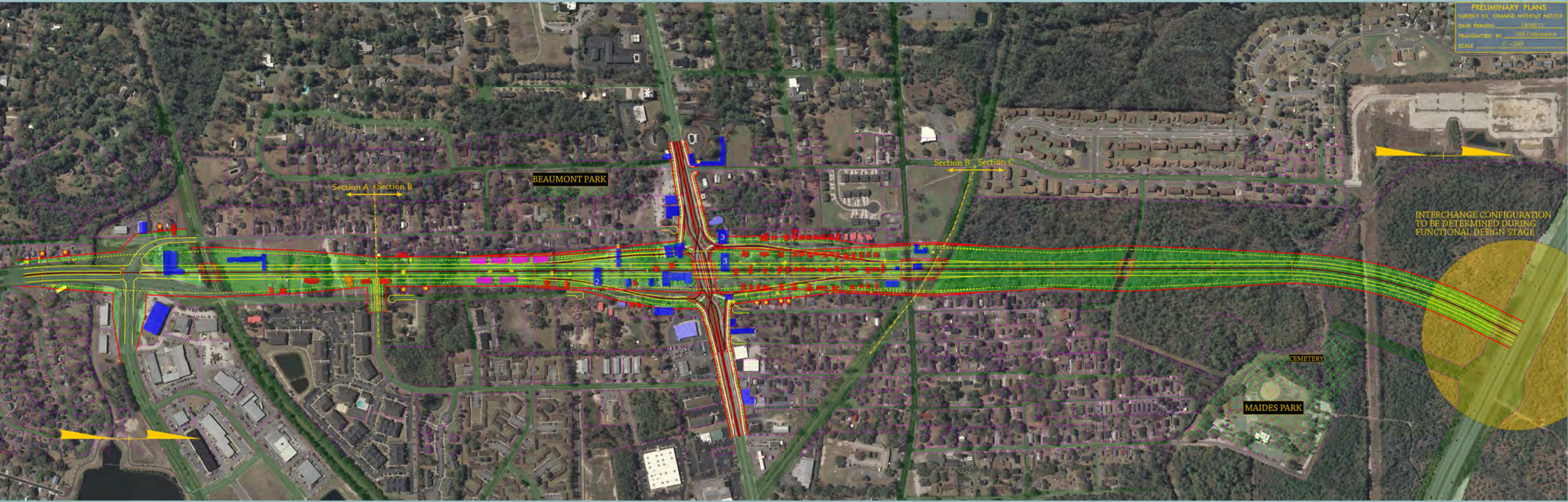


PREPARED FOR:
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 & TRAVEL DEVELOPMENT



OCT0809 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE REVISED: 10/2011
 PREPARED BY: URS
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 8
 Marker St - Diverging
 Diamond Interchange

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ▲ ASSIGNED PILL-HEIGHT

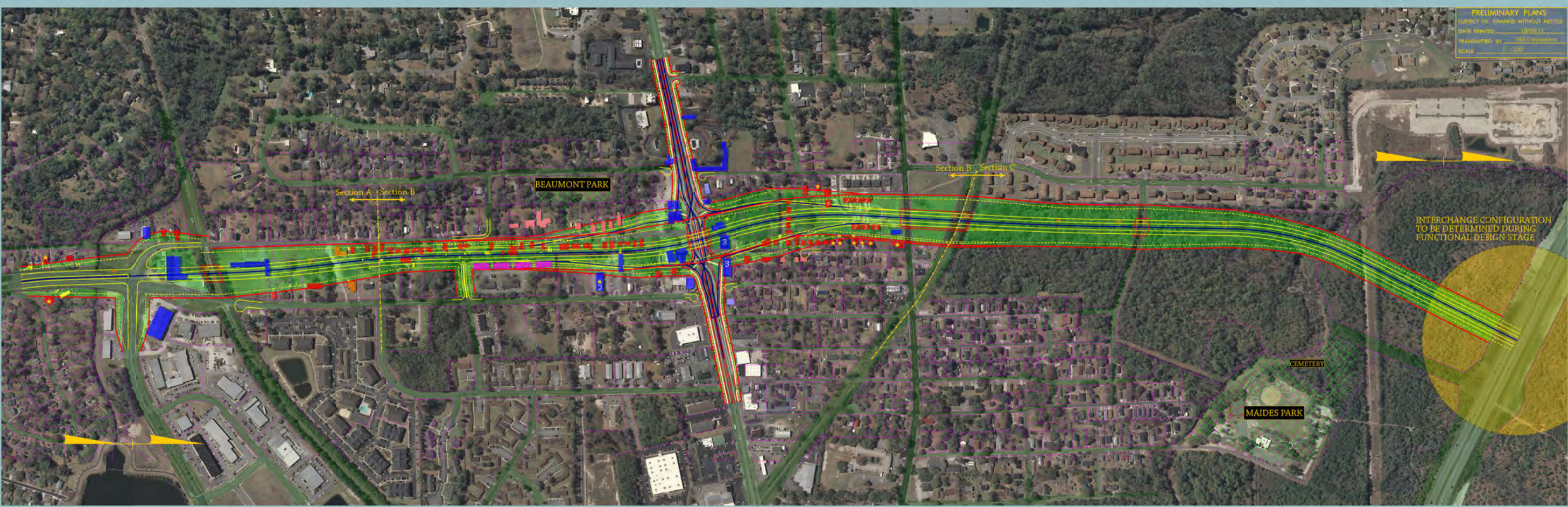
RELOCATIONS

- | | |
|-----------------------------|----------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # No. of Under-Businesses | |
| ★ Potential for Avoidance | |

200' 0' 200' 400'

PREPARED FOR:
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 & TRAVEL DEVELOPMENT

URS OCTOBER 2011



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 1
 Market St -
 Quailton Interchange

- LEGEND
- CENTERLINE
 - EDGE OF TRAVEL WAY
 - - - ESTIMATED SLOPE STAKE
 - RIGHT-OF-WAY LIMIT
 - EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - ↑ ASSIGNED PAV. HEIGHT

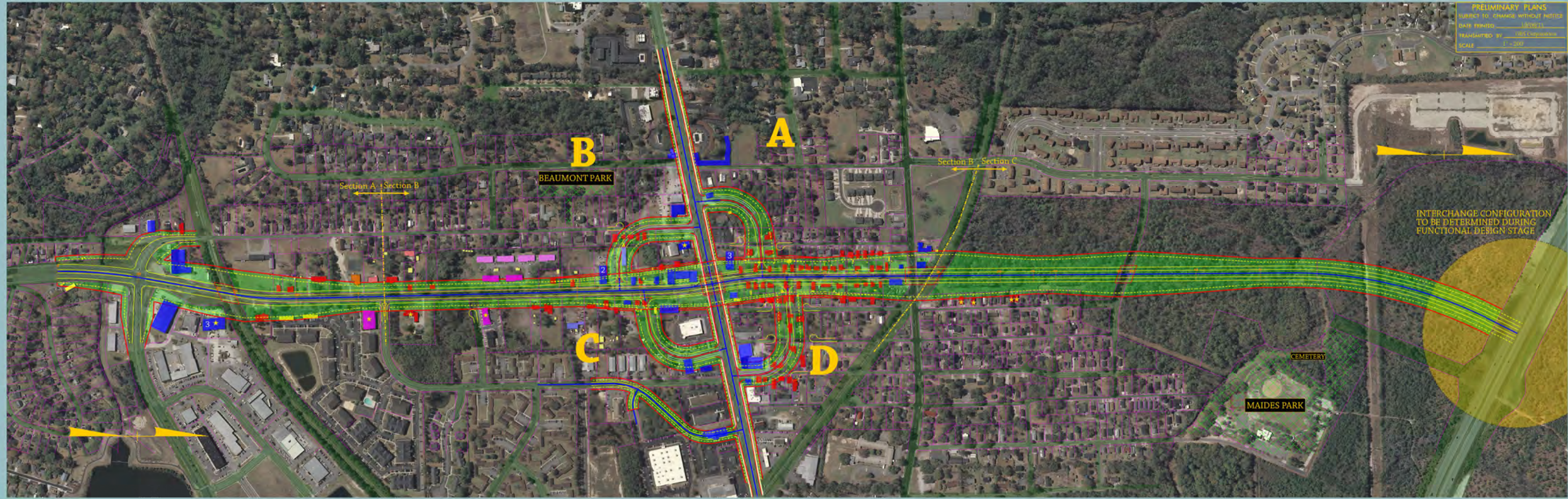
- RELOCATIONS
- | | |
|-----------------------------|---------------------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | # No. of Under-Businesses |
| ★ Potential for Avoidance | |

200' 0' 200' 400'

PREPARED FOR:
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 & TRAVEL DEVELOPMENT

URS OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
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 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 2
 Market St. -
 Quadrant Interchange

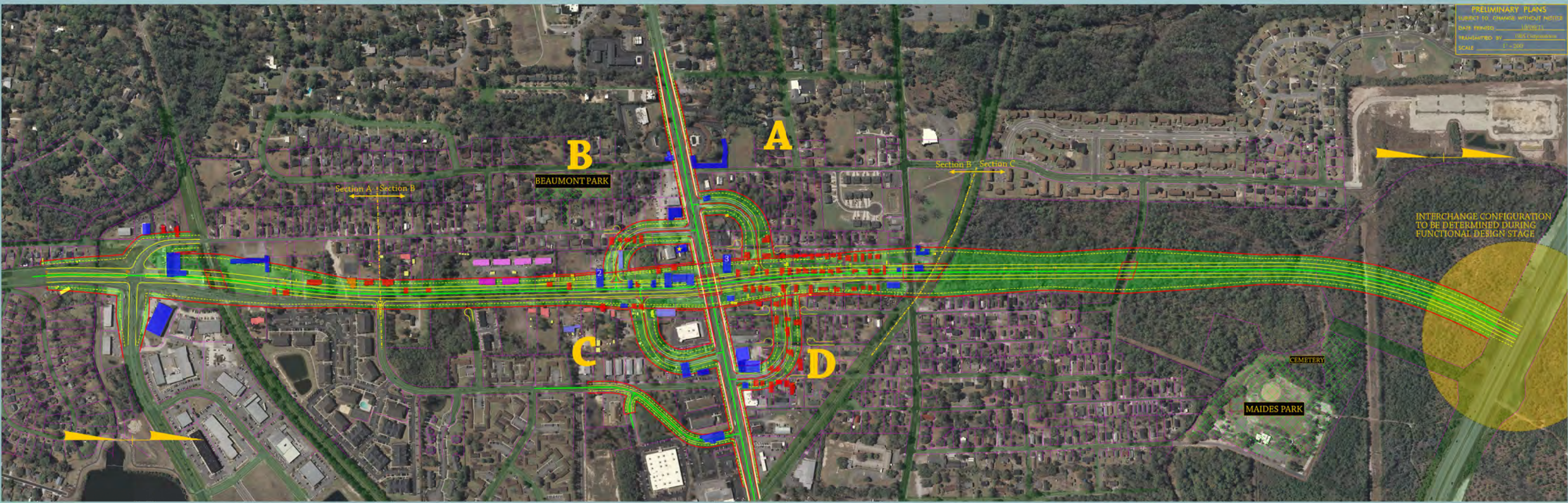
- LEGEND
- CENTERLINE
 - EDGE OF TRAVEL WAY
 - ESTIMATED SLOPE STAKE
 - RIGHT-OF-WAY LIMIT
 - EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - ↑ ASSIGNED PAV. HEIGHT

- RELOCATIONS
- | | |
|-----------------------------|----------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # No. of Under-Businesses | |
| ★ Potential for Avoidance | |

200' 0' 200' 400'

PREPARED FOR:
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 & TRAFFIC ENGINEERING CENTER

OCTOBER 2011



INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE

PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 3
 Market St. -
 Quadrum Interchange

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PAV. HEIGHT

RELOCATIONS

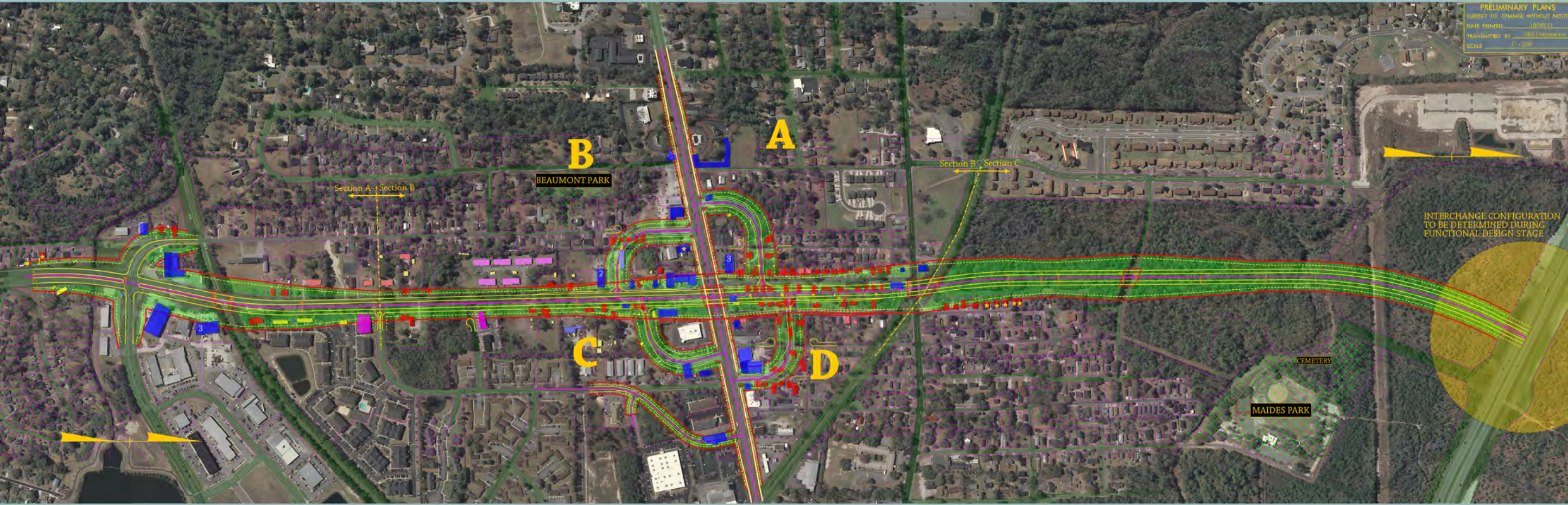
- | | |
|-----------------------------|-------------------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # | No. of Under-Buildings |
| ★ | Potential for Avoidance |

200' 0' 200' 400'

PREPARED FOR:
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 & TRAVEL DEVELOPMENT

URS OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
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 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 4

Marble St. -
 Quadrant Interchange

LEGEND

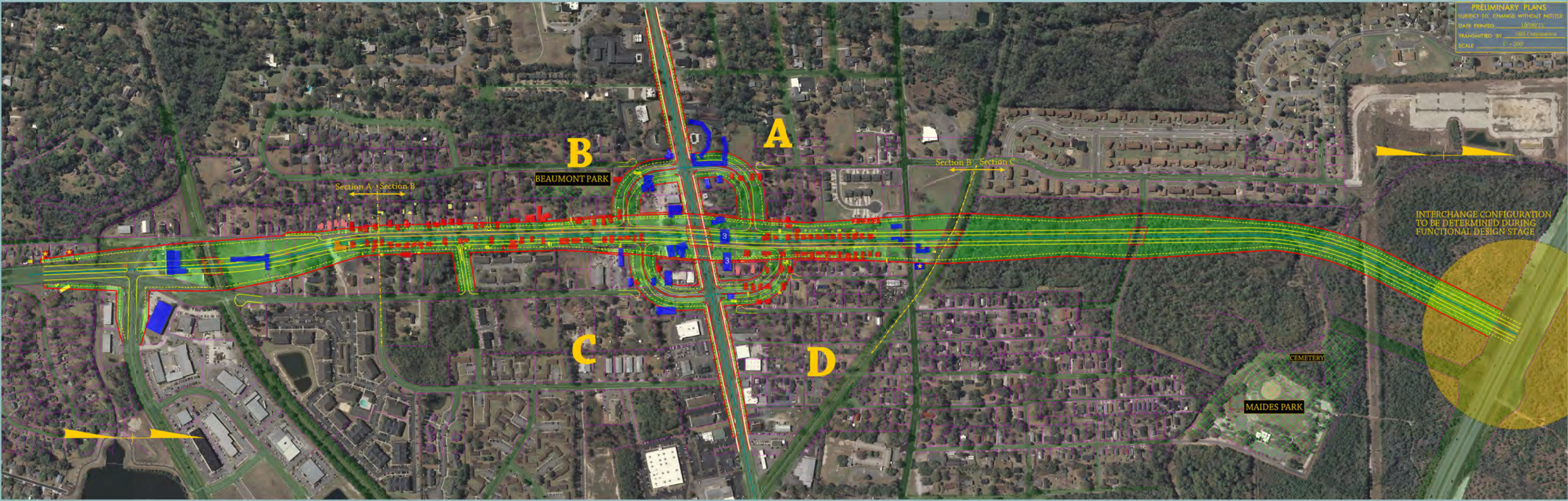
- CENTERLINE
- EDGE OF TRAVEL WAY
- - - ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PILL HEIGHT

RELOCATIONS

- | | |
|-----------------------------|----------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # No. of Under-Businesses | |
| ★ Potential for Avoidance | |



URS OCTOBER 2011



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 5
 Marker St -
 Quadrant Interchange

- LEGEND
- CENTERLINE
 - EDGE OF TRAVEL WAY
 - ESTIMATED SLOPE STAKE
 - RIGHT-OF-WAY LIMIT
 - EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - ↑ ASSIGNED FILL HEIGHT

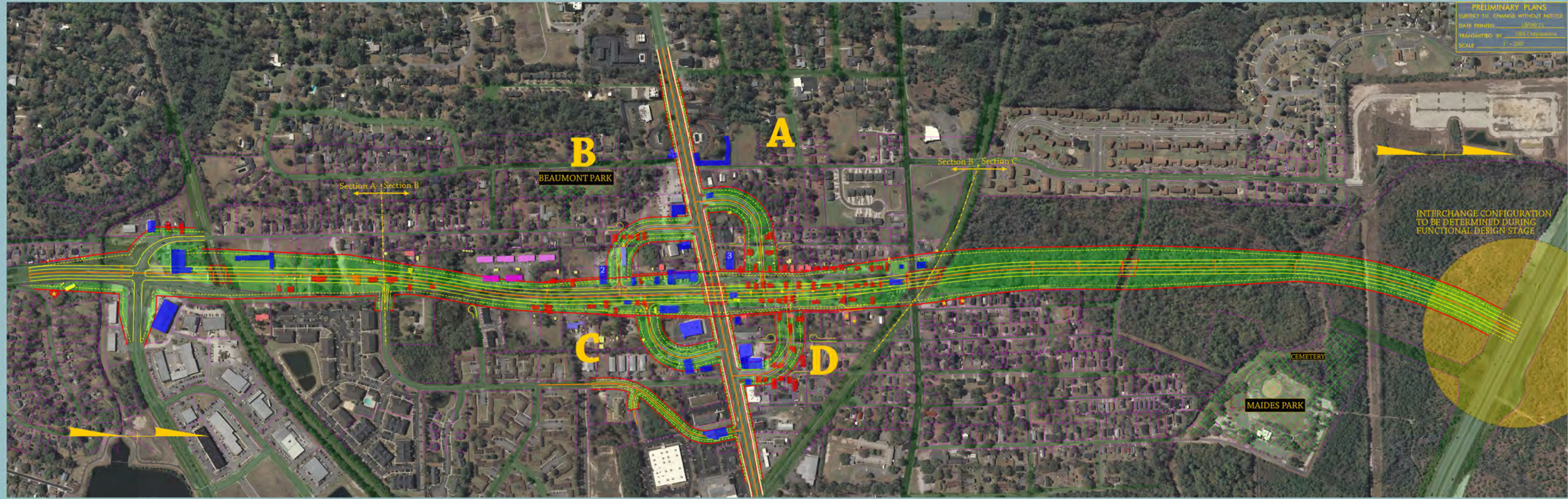
- RELOCATIONS
- | Direct Impact | Loss of Access |
|---------------|---------------------------|
| Red | Single Family Residential |
| Blue | Commercial |
| Purple | Multi-Family Residential |
| Orange | Church |
| Yellow | Accessory Structure |
| # | No. of Under-Businesses |
| ★ | Potential for Avoidance |

200' 0' 200' 400'

PREPARED FOR:
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 & TRAVEL DEVELOPMENT

URS OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE #6
 Marker St. -
 Quadrant Interchange

- LEGEND
- CENTERLINE
 - EDGE OF TRAVEL WAY
 - ESTIMATED SLOPE STAKE
 - RIGHT-OF-WAY LIMIT
 - EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - ↑ ASSIGNED PAV. HEIGHT

- RELOCATIONS
- | | |
|-----------------------------|---------------------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | ■ No. of Under-Businesses |
| ★ Potential for Avoidance | |

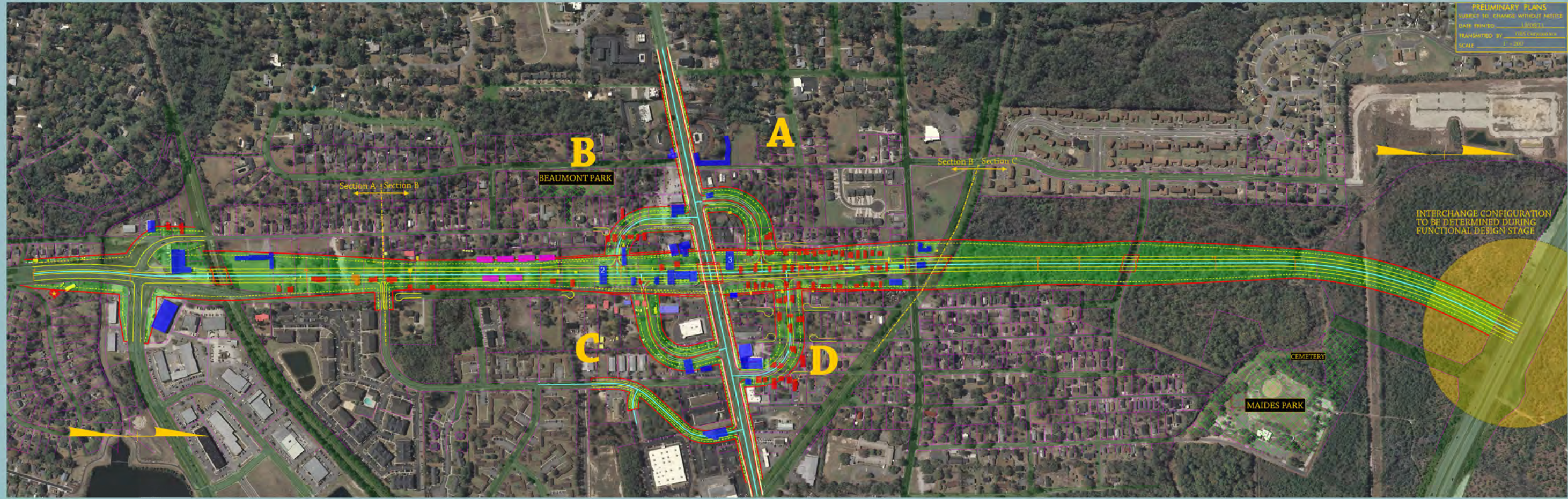
200' 0' 200' 400'

PREPARED FOR:
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 & TRAVEL DEVELOPMENT

URS

OCT0809 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 7

Marker St. -
 Quadrant Interchange

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- - - ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PILL HEIGHT

RELOCATIONS

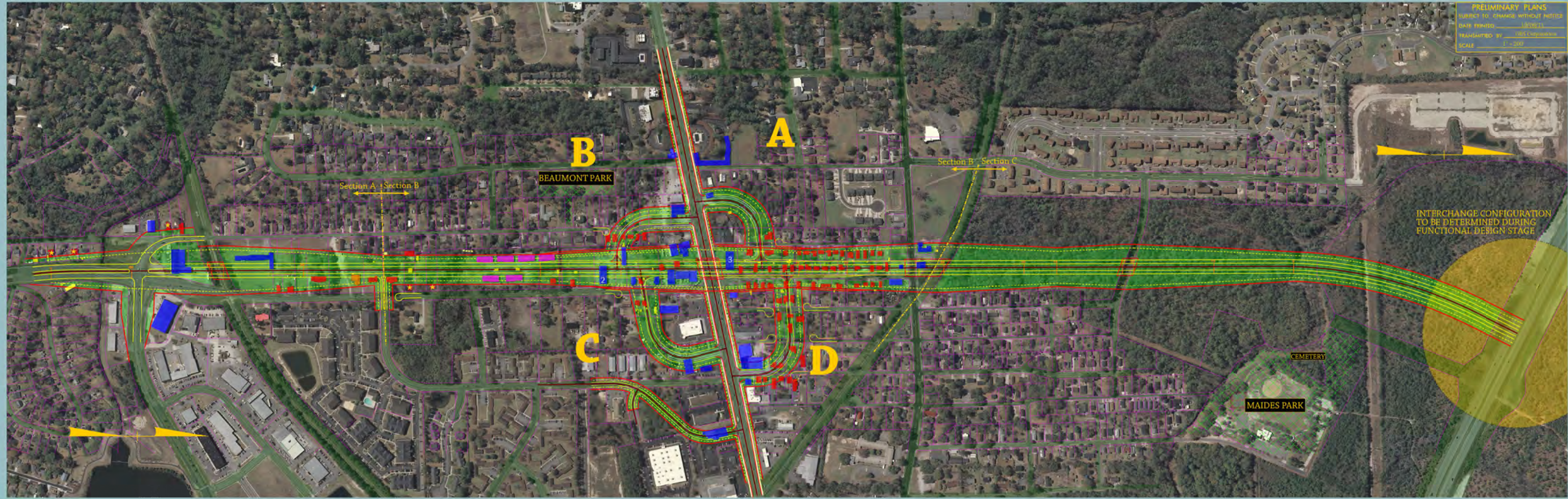
- | | |
|-----------------------------|-------------------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # | No. of Under-Businesses |
| ★ | Potential for Avoidance |



PREPARED FOR:
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 & AIRPORTS/AVIATION

URS OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE



PRELIMINARY PLANS
 SUBJECT TO CHANGE WITHOUT NOTICE
 DATE PRINTED: 10/20/11
 PREPARED BY: URS Corporation
 SCALE: 1" = 200'

STIP PROJECT U-4434
 INDEPENDENCE
 BOULEVARD
 EXTENSION

CONCEPT ALTERNATIVE 8
 Market St.
 Quadrant Interchange

LEGEND

- CENTERLINE
- EDGE OF TRAVEL WAY
- ESTIMATED SLOPE STAKE
- RIGHT-OF-WAY LIMIT
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- ↑ ASSIGNED PAV. HEIGHT

RELOCATIONS

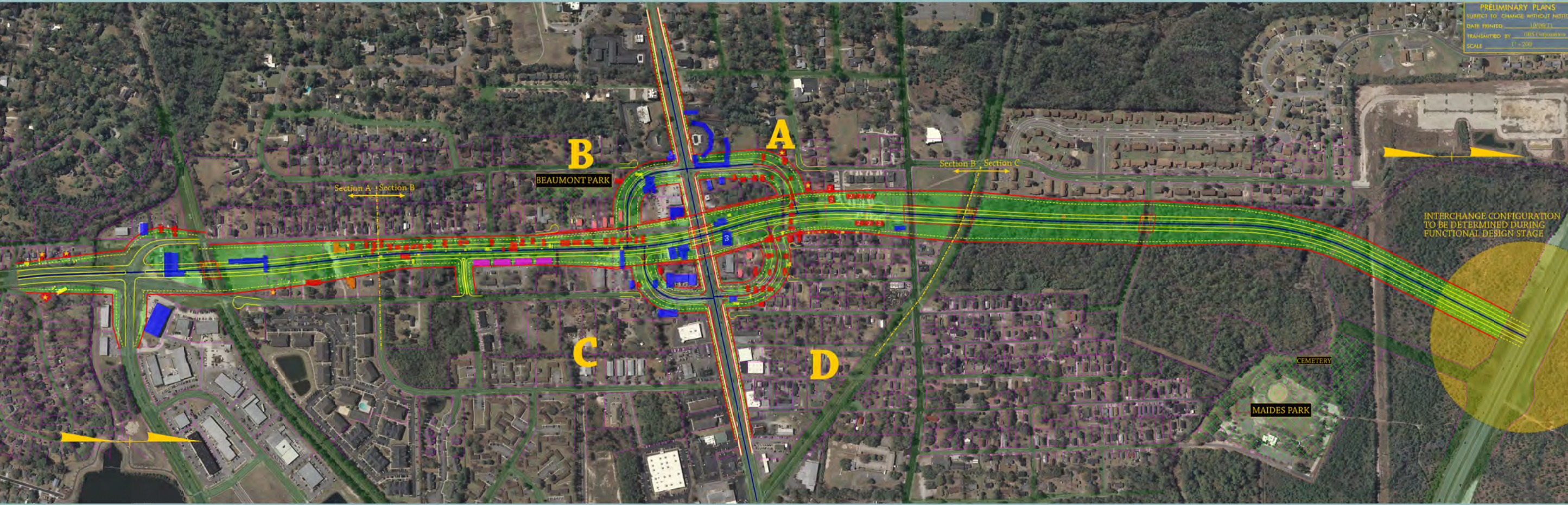
- | | |
|-----------------------------|-------------------------|
| Direct Impact | Loss of Access |
| ■ Single Family Residential | ■ Commercial |
| ■ Multi-Family Residential | ■ Church |
| ■ Accessory Structure | |
| # | No. of Under-Businesses |
| ★ | Potential for Avoidance |

200' 0' 200' 400'

PREPARED FOR:
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 & TRAVEL ENERGY CENTER

URS OCTOBER 2011

INTERCHANGE CONFIGURATION
 TO BE DETERMINED DURING
 FUNCTIONAL DESIGN STAGE

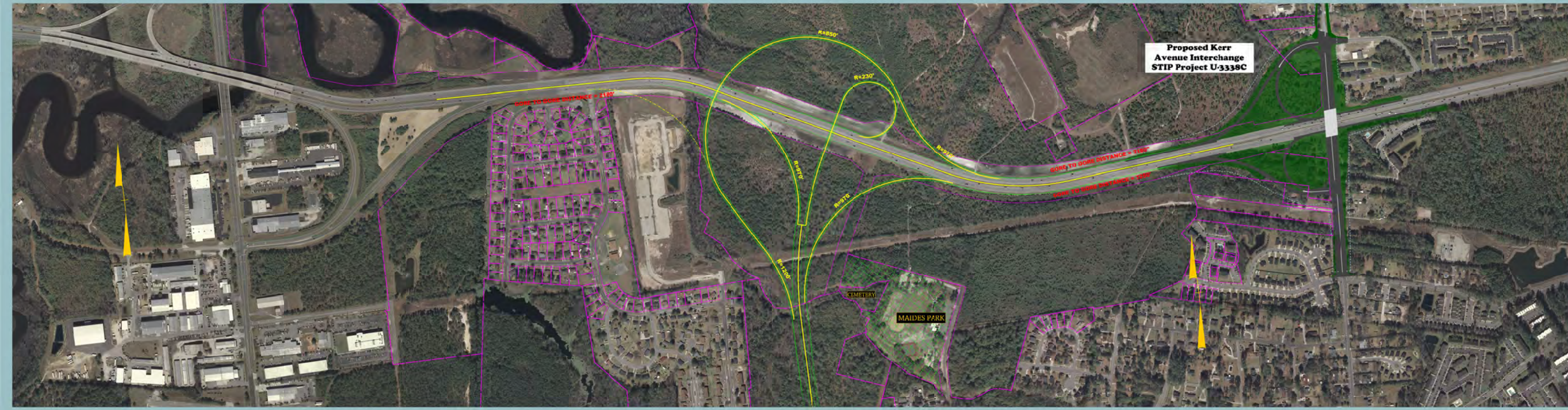


**Proposed Kerr
Avenue Interchange
STIP Project U-3339C**

STIP PROJECT U-4434
INDEPENDENCE
BOULEVARD
EXTENSION
MARTIN LUTHER KING JR.
PARKWAY INTERCHANGE
ALTERNATIVE A:
50 (Unstable)/50/50

DESIGN SPEEDS:
RAMP ENTRANCE/EXITS:
50 mph w/ 6' max. radius
FLYOVER RAMP:
50 mph w/ 6% superlevation
LOOP RAMP:
30 mph

0 100 200 300 400
PROPOSED FOR
CONSTRUCTION BY
DEPARTMENT OF TRANSPORTATION
FLORIDA TURNPIKES
UMA AUGUST 2011



**Proposed Kerr
Avenue Interchange
STIP Project U-3339C**

STIP PROJECT U-4434
INDEPENDENCE
BOULEVARD
EXTENSION

MARTIN LUTHER KING JR.
PARKWAY INTERCHANGE

ALTERNATIVE B:
50 MPH / 50/30

DESIGN SPEEDS:

RAMP ENTRANCE/EXITS:
50 mph w/ 8% superelevation

FLYOVER RAMP:
50 mph w/ 6% superelevation

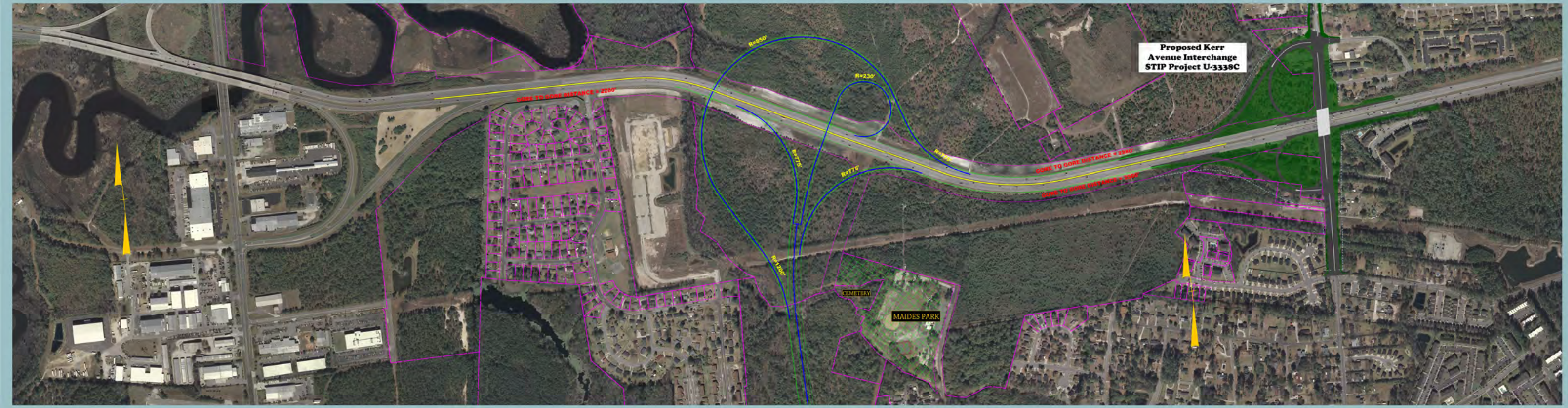
LOOP RAMPS:
30 mph

0 200 400



PREPARED FOR
FLORIDA DEPARTMENT OF TRANSPORTATION
PROJECT U-3339C

ups AUGUST 2011



**Proposed Kerr
Avenue Interchange
STIP Project U-3339C**

STIP PROJECT U-4434
INDEPENDENCE
BOULEVARD
EXTENSION
MARTIN LUTHER KING JR.
PARKWAY INTERCHANGE
ALTERNATIVE C:
50 / Min. 1/40/30

DESIGN SPEEDS:
RAMP ENTRANCE/EXITS:
50 mph w/ 8% superelevation
FLYOVER RAMP:
40 mph w/ 6% superelevation
LOOP RAMPS:
30 mph

0 100 200 300 400
PROJECT FOR
STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION
PROJECT U-3339C
ums AUGUST 2011



**Proposed Kerr
Avenue Interchange
STIP Project U-3339C**

STIP PROJECT U-4434
INDEPENDENCE
BOULEVARD
EXTENSION

MARTIN LUTHER KING JR.
PARKWAY INTERCHANGE

ALTERNATIVE D:
40' / 40' / 40' / 30'

DESIGN SPEEDS:

RAMP ENTRANCE/EXITS:
40 mph w/ 8% superelevation

FLYOVER RAMP:
40 mph w/ 6% superelevation

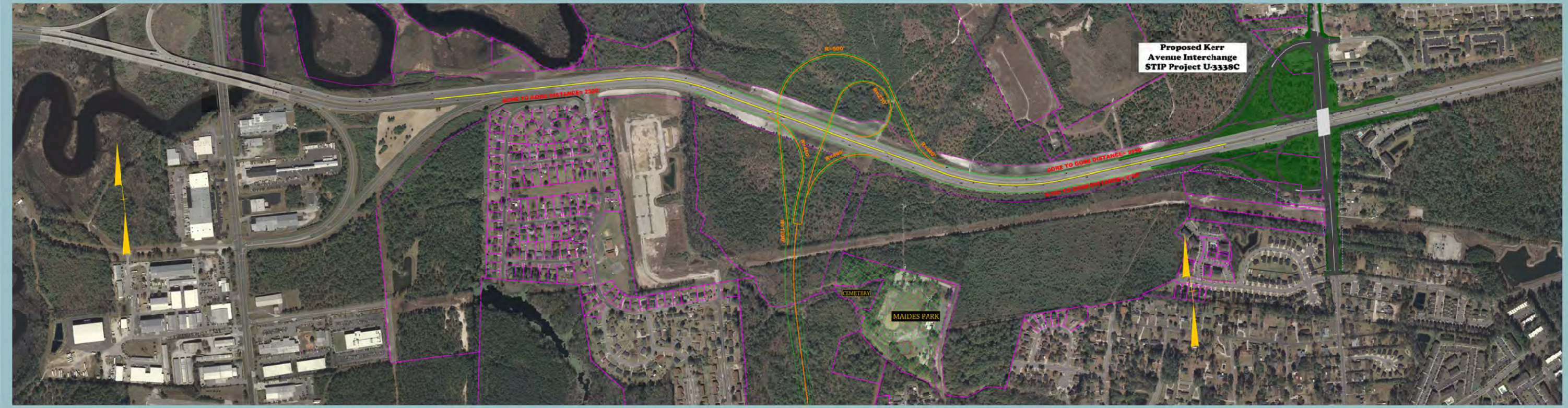
LOOP RAMPS:
30 mph

500' 0" 200' 0" 400'



UNIVERSITY OF MISSISSIPPI
DEPARTMENT OF TRANSPORTATION
PLANNING & DESIGN DIVISION

ums AUGUST 2011



MEMORANDUM

December 15, 2011

TO: Ted Devens, PE

FROM: Peter Trencansky, PE, PTOE

SUBJECT: **Record of Meeting with NCDOT Project Team,
December 12, 2011
State Project 37764.1.1 (TIP U-4434)
Independence Boulevard Extension, New Hanover County**

ATTENDEES

Ted Devens	NCDOT – Project Development & Environmental Analysis (PDEA)
Brian Yamamoto	NCDOT - Project Development & Environmental Analysis (PDEA)
Gary Lovering	NCDOT – Roadway Design Unit
Anthony West	NCDOT – Roadway Design Unit
BenJetta Johnson	NCDOT – Congestion Management Unit
Chandrakant Sura	NCDOT – Congestion Management Unit
Allen Pope	NCDOT – Division 3
Jackson Provost	NCDOT – Division 3
Chad Kimes	NCDOT – Division 3
Katie Hite	NCDOT – Division 3
Ron Lucas	Federal Highway Administration
Mike Kozlosky	Wilmington Urban Area Metropolitan Planning Organization
Mike Littlefield	URS Corporation
Peter Trencansky	URS Corporation

PURPOSE

The purpose of the meeting was to present the preliminary recommendations made by the Raleigh-based project team to the Wilmington MPO and Division 3 staff to make a final decision on which alternatives to carry forward into Preliminary Design. Additionally, project design issues and next steps in the project will be discussed.

MATERIAL ATTACHMENTS

For documentation purposes, several attachments are pertinent to these minutes. These items presented information which was discussed as a material part of decision-making:

- Meeting Agenda
- PowerPoint Presentation
- Preliminary Design Selection Meeting Handout

MEETING NOTES

Ted opened the meeting with introductions, by stating the purpose of the meeting and discussing the project timeline, noting that the project was on schedule. Peter then distributed the agenda and handout for the meeting and began with the PowerPoint presentation.

The following items are representative of the details discussed.

- The recommendations by the Raleigh-based project team included Alternatives 2, 7 and 8, each with the Tight Urban Diamond Interchange, Quadrant AC and Quadrant BC options at Market Street. The Division 3 and Wilmington MPO staff agreed with the recommendation.
- The Division 3 and Wilmington MPO staff also agreed with the recommendation for a 50 mph design speed for the flyover ramp from Martin Luther King Jr. Parkway to Independence Boulevard. The group recognized that natural resource impacts (and agency reaction) to the Smith Creek area may cause this design to be minimized at a later date.
- The typical section for Market Street was discussed and Mike Kozlosky felt that it was unlikely that bicycle lanes would be included along the roadway and that a wider sidewalk (greater than the standard 5 foot width) may be warranted. It was stated that the wider sidewalk or a multi-use path could transition to the planned road diet west of the project limits. Mike stated that it would be prudent to plan for a 10-foot multi-use path on both sides. With setback, he estimated need for a 13-foot berm width from back of curb. The accommodation of Bus Rapid Transit (BRT) along Market Street was also discussed and it was determined that the project would be designed based on the assumption that BRT would operate in mixed traffic along the outside travel lane within the limits of the proposed project and that no special transit accommodations were recommended along Market Street.
- Mike Kozlosky stated that at this point in the project it was safe to assume that the proposed project would not include any bus turnouts or transit amenities that would affect the project footprint.
- Bicycle and Pedestrian accommodations were discussed and Mike Kozlosky felt that it was likely that the Wilmington Greenway Plan that would be developed over the coming year would include a greenway that would run from Empie Park south of the project to Maides Park near the northern terminus of the project. The location of the greenway was discussed and the group felt it was preferable that the path would run along the toe of slope on the east side of the project; however, no formal decisions were made on specific bicycle or pedestrian accommodations. The challenges of two bike/ped RR crossings were briefly discussed. The project team discussed a recommendation from the NCDOT Bicycle and Pedestrian Unit staff that a design charrette be held to discuss the multi-modal amenities; however, the Division and MPO did not feel that it was the right time to have a meeting due to the uncertainty in future plans and the funding for the multi-modal improvements. NCDOT noted that their policies required the initial steps be taken by the local governments and requested that the MPO or City provide a letter detailing what types of accommodations they would like included in the proposed project.
- The closure of Kornegay Avenue (with reconnection to 23rd St) was discussed and Allen Pope stated that it used loop funds and was beyond the capacity of what could be done as a Division Design Construct (DDC) project and recommended that it be included in the proposed project instead. Mike Kozlosky noted that it had been included in the prioritization and was included in the second tier of project which would mean it is not likely to be in place prior to the construction of the proposed project. Allen felt that unless the project could be built without the closure of Kornegay Avenue that it should be included in the proposed project. NCDOT PDEA will further investigate and determine the next steps relating to this issue.
- The next steps were also discussed and it was recommended that a meeting be held with local staff (possibly in the morning) and with local elected officials (possibly in the afternoon or evening). The Division

Memorandum/Project File

37764.1.1 (TIP U-4434)

December 15, 2011

Page 3

and MPO staff felt that holding the meeting 2-3 weeks before the workshop would be best from a timing standpoint.

- The conceptual phasing plan at Randall Parkway was discussed and the Division 3 staff felt that it seemed to present the most viable solution to maintaining traffic during construction.

MEETING RECOMMENDATIONS

The following recommendations were agreed to by the project team and will be developed as Preliminary Design Alternatives:

- Alternatives 2, 7 and 8 with the TUDI, Quadrant AC and Quadrant BC options at Market Street for each alignment
- Trumpet interchange with 50 mph design (Alternative B)

cc: Attendees



MEMORANDUM

December 13, 2011

TO: Gary Lovering

FROM: Mike Littlefield

DATE: December 13, 2011

SUBJECT **Record of Meeting with NCDOT, December 13, 2011**
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension

ATTENDEES

Gary Lovering	NCDOT Roadway Design
Anthony West	NCDOT Roadway Design
Peter Trencansky	URS Corporation
Mike Littlefield	URS Corporation

PURPOSE

The purpose of the meeting was to discuss the Preliminary Design Guidelines for the Independence Boulevard Extension Project and understand the expectations for the Preliminary Design phase of the project.

MEETING NOTES

Peter opened the meeting stating the purpose is to discuss the details of the preliminary design submittal including approval of the proposed design criteria. The following bullets are representative of the details discussed.

- Gary stated that URS is to follow NCDOT's Preliminary Design Guidelines as the baseline for work to be included in the preliminary design phase
- URS will provide typical sections for -L-, -Y2- (Randall Parkway), -Y9- (Market Street), -Y10- (MLK), -Y17- (Princess Place), -Y19- (Hurst Street), bridges on -L-, and the MLK flyover
- Gary will review the design criteria for -L- and the MLK flyover, ramps, and loop
- URS will include the design speed with the horizontal and vertical curve data on the



plans

- Gary stated that a pavement design is not needed at this point to proceed with preliminary design
- URS will show superelevation increments on the plans in full percentage points
- URS will only utilize spirals on the MLK interchange ramps exiting MLK
- URS will perform vertical clearance calculations with the minimum number of points necessary to prove adequate vertical clearance has been provided
- URS will label overall storage lengths at intersections and any tapers or transitions for median transitions and lane additions / drops. Minor tapers for adding turn lanes at intersections will not be labeled
- URS will show lane lines at intersections and along the roadways in the plans only to the extent necessary to display lane configurations (100'-150' from intersections with 100-200 foot long lane lines shown)
- URS will perform gore calculations for internal use in design, but not submit them. The gore calculations will be detailed enough to prove that the rollovers are acceptable
- URS will show all guardrail and anchor units in the plans
- URS will show right-of-way monuments in the plans but are not required to label the station and offset
- URS will dimension right-of-way widths where a consistent width is provided for an extended length
- URS will submit the plans on topographic mapping without aerials
- URS will include any channel relocations for major drainage ways; however no toe of fill ditches will be included in the design.
- URS will show proposed bridges in the profile including estimated length and structure depth
- URS will assume all proposed bridges are single span. If distance becomes excessive, URS will work with NCDOT to determine what type of span length to use.
- URS will show simple / smooth profile ties which do not include the pavement section of the -Y- line being tied to. The profile will note the cross slope of the roadway that is being tied to, for easier review of the tie.
- URS will assume a 3 inch overlay on Market Street to tie to
- URS is not required to provide an overlay profile on Market Street, but will show a 3 inch line above existing ground
- URS will provide 11x17 hard copy cross sections at 1"=10' scale
- URS is not required to utilize shear lines to develop cross sections but will provide enough detail in the cross section to get reasonable quantities for the earthwork. URS



will decide whether to run ramps and mainlines in the same cross section file or in separate files. The summary of earthwork will be broken out by alignment to the greatest extent possible.

- URS will not be required to break the quantity calculations into sections A, B, and C as shown on the conceptual plans
- URS will submit a summary of quantity totals, but are not required to provide individual break down quantity sheets
- URS will develop three –L- centerline chains to represent Alt2, Alt7, and Alt8. All quadrant and TUDI ramps will tie to these three centerlines and separate centerline will not be developed for the individual intersection options.
- URS and NCDOT discussed the expectations for how precise the designs need to be. URS had concerns that due to the urban nature and high number of constraints and variables to consider in the design that developing a completely optimized solution for all alternatives would be time consuming and costly. NCDOT agreed and stated that their expectation was that the designs should be to the level where they are within a reasonable tolerance of being optimized. For example, if the intent was to hold a property line then the designs should be within 10-15 feet of the property line. For estimating purposes it is assumed that the initial design will be developed and that one iteration of the design will be undertaken to further optimize the design. Additional optimization will be included later in design if needed or at the time a preferred alternative is selected.
- URS will develop the preliminary designs alignment without consideration for retaining walls and the inclusion of retaining walls into the design will be done at a later date as a minimization measure. Any future incorporation of retaining walls that require a shift in the alignment would be scoped in a future task order and are not included in the initial preliminary design scope.
- URS will provide develop a basic traffic control plan to show the phasing detail of the Randall Parkway / Independence Boulevard raised intersection including developing the detour and phasing to the preliminary design level, including the evaluation of retaining walls and temporary detour routes to maintain traffic during construction.
- NCDOT agreed that corridor modeling will not be used for the preliminary design of the project
- URS will submit hard copy plans and cross sections. Digital files are not required. Gary said he will provide a cursory review of the plans if URS would like to make a partial submittal of one of the design alternatives. The review will not include detailed review of the design, but will include a review of the completeness of the plans and whether they meet the expectations of NCDOT.



Memorandum/Project File

December 13, 2011

Page 4

- URS will wait until a preferred alternative is selected to develop service road concepts
- URS is not required to include bike and pedestrian facilities into the preliminary design. Once a preferred alternative is identified and the local governments make commitments to the features the plans will be updated (under a separate scope of work) to incorporate the amenities
- The right-in/right-out connection for Darlington Street at -L- was discussed and NCDOT recommends that this connection be eliminated. URS will discuss this with PDEA and determine prior to developing preliminary designs if it can be removed from the design.

CC: Attendees
File



MEMORANDUM

January 12, 2012

TO: Attendees

FROM: Mike Littlefield

DATE: January 9, 2012

SUBJECT **Record of Meeting with NCDOT, January 9, 2012**
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension

ATTENDEES

Ted Devens	NCDOT PDEA
Gary Lovering	NCDOT Roadway Design
Anthony West	NCDOT Roadway Design
Bob Mosher	NCDOT Bicycle and Pedestrian Division
Nancy Horne	NCDOT Rail Division
Andrew Thomas	NCDOT Rail Division
Richard Mullinax	NCDOT Rail Division
Peter Trencansky	URS Corporation
Mike Littlefield	URS Corporation

PURPOSE

The purpose of the meeting was to discuss the incorporation and design of a multi-use path along the Independence Boulevard Extension Project.

MEETING NOTES

Ted opened the meeting stating the purpose was to discuss the details of the multi-use path and the related right-of-way impacts associated with the addition of the path along the east side of Independence Boulevard. The following bullets are representative of the details discussed.

Multi-use Path Typical Section

- Bob stated that NCDOT's typical for a multi-use path does not apply in this application and that 40 feet of additional right-of-way would not be a necessary requirement along Independence Boulevard.



- Bob stated that lighting along the multi-use path may be required, but the City of Wilmington would likely be required to pay for and maintain it.
- Peter stated that AASHTO does not require a 5 foot graded shoulder on multi-use paths (as shown in the NCDOT typical section) and that a 2 foot graded shoulder would likely work in this application.
- The group agreed that the multi-use path will be located on the east side of Independence Blvd. Unless special conditions exist, the path would be at-grade at the toe-of-slope of the highway.
- The group agreed that a design which would not require a ditch along the east side of the multi-use path would work best and reduce right-of-way requirements.
- Peter stated that a 1 percent cross slope draining back toward Independence Blvd. would work except in tight curves or specific areas where the path changes directions sharply or crosses streets. This design would allow for a v-ditch at the toe of fill on Independence Blvd to drain the multi-use path.
- The group agreed that additional room on the east shoulder of the path should be provided for lighting and that light poles could be placed at least 5 feet from the edge of the path.
- Gary stated that URS is not required to design the path for the preliminary design phase and will wait until an alternative has been selected before proceeding with the detailed design.
- The group agreed that 50 feet should be provided between the roadway slope stake on the eastern side of Independence Blvd and the proposed right-of-way line to allow room for the path and its impacts. The design plans will show a 40-foot wide strip that will designate the corridor for the multi-use path. The additional 10 feet is based on the standard offset for maintenance and construction, and also offers additional width to accommodate cut/fill that ties-in with existing landscape.

Multi-use Path Location

- Ted Devens conferenced in Mike Kozlosky via telephone and Mike and other MPO staff participated in the remainder of the meeting via conference call.
- The group agreed that the path should have a perpendicular crossing of Independence Blvd. and Randall Parkway at the Randall Parkway intersection. Connections from the Cross-City trail will need to be made to both an east-side multi-use path, as well as to neighborhoods bordering Mercer Avenue to the east side of Covil Avenue. The path will be on the south side of Randall Parkway and cross Randall Parkway and Independence Blvd. The group discussed potential options for crossing Independence south of the railroad track. Options discussed included a standard at-grade crossing



along the south side of the intersection (via crosswalk), a pedestrian culvert or extending the bridge over the railroad beyond the railroad right-of-way to accommodate a crossing. No decisions were made on the crossing type and URS will evaluate the options during Preliminary Design and make recommendations to NCDOT at a later date.

- Peter stated that URS is investigating whether or not Mercer Ave. can be connected to the intersection to create a 4-leg intersection. Gary stated that for preliminary design it would be acceptable if the grades on Mercer approached 8-9 percent in order to make the connection. Peter stated adding the Mercer connection may cause the intersection to fail from a traffic standpoint but would provide further feedback after the meeting with additional details.
- The group agreed that the path would cross the railroad at the existing Covil Avenue crossing location, which would be modified to prohibit vehicular traffic. The NCDOT Rail Division will coordinate with CSX, likely through the upcoming Wilmington Traffic Separation Study, on this approach.
- The group agreed that the path should cross Darlington Ave. at a perpendicular angle at the end of the radius return.
- The group agreed that running the path along the outside of Quadrant Ramp C and then west along Market (at the signalized intersection) before continuing north along the toe of slope for Independence Blvd is the best option.
- Gary stated that URS should use a curb and gutter typical section on all of the quadrant ramps, which would allow the multi-use path to be on a berm adjacent to the roadway rather than at the toe of fill.
- The group agreed that the multi-use path would run along the outside of the ramps for the Tight Urban Diamond Interchange options with a crossing at the ramp intersection with Market Street.
- Mike K. stated that the City desires 8 foot sidewalks along Market Street east of the Market Street interchange and the width would be 10 feet when overlapping with the multi-use path. Mike indicated that standard 5-foot sidewalks within the interchange (under the bridge) and west of the interchange were acceptable.
- Mike K. stated that he would provide a typical section on Market Street that reflects future construction planned by the City.
- A discussion was held on potential options for crossing the northern railroad crossing in the vicinity of Princess Place Drive. A multi-use path along the toe of slope would likely require a new at-grade crossing of the railroad for the path. There was concern that this type of design may be considered a new crossing by CSX and may require mitigation through the closure of other at-grade crossings along the railroad. The group also discussed the possibility of running the path along the edge of the roadway (behind the noise wall) at the top of the fill slope, utilizing the bridge crossing of the railroad. The



group felt this was less desirable as it would not allow for a connection to the adjacent neighborhoods nor the multi-modal accommodations along Princess Place and may be difficult from an ADA compliance standpoint due to the grades. Mike K said that he preferred the option that carried the path along the top of fill. NCDOT Rail Division will discuss the crossing with CSX Rail to determine how best to design the crossing. The group determined that the 50-foot offset would be adequate for either configuration during preliminary design and that the decision on the exact configuration could be made at a later time.

- A discussion was held about the options to tie the path into Maides Park and Mike K. will contact the Wilmington Housing Authority to determine if an easement through their property could be obtained to allow a new connection to the park.
- Mike K. stated that the City of Wilmington prefers the path connect to Maides Park through a connection on new location, but did not rule out the option of connecting to the park through existing city streets if all other options were too problematic.

ACTION ITEMS

- Mike Kozlosky will provide a typical section on Market Street that reflects future construction planned by the City. He will also provide guidance as to where to tie-in the multi-use path with Maides Park. (This location would mark the end of the multi-use path adjacent to highway).
- NCDOT Rail Division staff will coordinate with CSX Rail to determine if a vehicular crossing converted to a pedestrian crossing only at the southern crossing (Randall Parkway) and a new pedestrian only crossing for the northern crossing (Princess Place) will be allowed and how many, if any, at grade closures will be required in exchange for the modified crossing.
- Peter will provide a typical section of the proposed pedestrian only crossing and an overall impacts map for NCDOT Rail Division staff to use in coordinating with CSX Rail once the preliminary designs plans are developed enough to convey the intent of the design.
- Addition by Devens AFTER the meeting: Peter will provide a typical section of the proposed highway in combination with an east-side multi-use path at toe of slope. If it is later determined that the multi-use path will share highway grade, then Peter will also develop a typical section of this scenario.

CC: Attendees
File



MEMORANDUM

August 31, 2012

TO: Attendees

FROM: Peter Trencansky

DATE: August 15, 2012

SUBJECT **Record of Meeting with NCDOT, August 15, 2012**
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension

ATTENDEES

Ted Devens	NCDOT PDEA
Gary Lovering	NCDOT Roadway Design
Fred Barkley	NCDOT Right of Way
Peter Trencansky	URS Corporation
Ed Edens	URS Corporation
Dena Snead	URS Corporation

PURPOSE

The purpose of the meeting was to review the preliminary design centerline alignments for the three mainline alternatives of the Independence Boulevard Extension Project. The goal was to reach agreement on the centerline locations for the three alternatives before URS begins developing the interchange options at Market Street. Once the alignments are agreed to URS will move forward with the interchange design and any change of alignment for the mainline requested by NCDOT would require an additional scope of services to complete.

MEETING NOTES

Ted opened the meeting stating he and Fred Barkley had discussed the designs provided to the right-of-way branch as part of the TIP right-of-way cost update. The designs provided were for the Alternative 2 alignment with Tight Urban Diamond Interchange. Ted provided a list of comments that were developed when they met.

Randall Parkway/Independence Boulevard Intersection – common to all alternatives

The main comment was the southern terminus of the project at Randall Parkway. Fred felt that we



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could shift the Randall Parkway intersection to the south to potentially minimize the impacts to the property in the northeast quadrant of the intersection. Following a discussion of the construction phasing and the location of the detour roadway it was determined that shifting the alignment would likely result in a minimal change to the impacts in the northeast quadrant due to the location of the Independence Boulevard mainline. Therefore, it was agreed that the design presented was adequate and that no changes would be made. It was noted that the possibility would exist for adding retaining walls later in the process to minimize impacts at this location, if determined to be feasible.

Alternative 2

The design for alternative was reviewed and Fred and Ted both noted that shifting the alignment to the west would minimize impacts. It was noted that Alternative 2 was meant to utilize the existing Covil Avenue corridor and that the shift would move the alignment to the location of Alternative 7. The alignment for the connection from Darlington Street to Independence Boulevard was discussed and it was agreed that the alignment should be shifted (for all three alternatives) such that none of the apartments to the south and east of the connection would be taken due to the Darlington connection, and if possible, such that no right-of-way would be taken from the apartment complex. It was noted that there was the possibility for future minimization, via use of retaining walls at Sta. 73+00 to 80+00 along the east side of the alignment.

Following the discussion it was determined that no changes to the Alternative 2 mainline would be needed and that the development of the Market Street interchanges could begin.

Alternative 7

The Alternative 7 alignment was reviewed and everyone felt it was a good alignment from a minimization of impacts standpoint. It was noted that there was the possibility for future minimization, via use of retaining walls at Sta. 70+00 to 81+00 along the east side of the alignment. It was also decided that for the bridge over Princess Place and the CSX railroad that the right-of-way line would be drawn to connect the proposed right-of-way lines outside the toe of fill for each bridge abutment, thus taking the daycare center that would be immediately adjacent to the proposed bridge.

Following the discussion it was determined that no changes to the Alternative 7 mainline would be needed and that the development of the Market Street interchanges could begin.

Alternative 8

The Alternative 8 alignment was reviewed and generally everyone agreed it had merit from an impact standpoint. It was decided that the curve north of Market Street should be flattened and the tangent shifted slightly such that the alignment would not take any structures within the Creekwood South housing complex operated by the Wilmington Housing Authority. The connection from



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Darlington Street to Independence Boulevard was discussed and it was agreed at the meeting that the design would include the same connection from Darlington Avenue that is shown on Alternatives 2 and 7.

Following the discussion it was determined that the alignment for the Alternative 8 mainline would be shifted to eliminate any takes from Creekwood South and that once revised the development of the Market Street interchanges could begin.

Martin Luther King Jr. Parkway Interchange

The interchange designs for MLK Jr. Parkway were discussed and the connection for each of the alternatives was very similar. NCDOT agreed to the layout of the interchange and noted that the design for Alternative 2 and 7 clip a corner of the park property. It was agreed that the designs would be modified as appropriate (via slopestakes or retaining wall, but without altering centerline if possible) to avoid impacting any park property – thus pulling back the R/W line for a short distance at this location. There was also a discussion on the best methods for adding the auxiliary lanes and the merge/diverges along MLK Jr. Parkway and it was agreed that a future meeting would be held to discuss these once the new traffic was approved and the capacity analysis was completed.

Kornegay Avenue Closure

The closure of Kornegay Avenue was discussed and it was determined that NCDOT should review the previous decisions for the closure with Karen Fussell. NCDOT will provide guidance to URS on how to proceed once they discuss this location with Division 3 staff.

Bridge Span Lengths

The span lengths for bridges were discussed and URS noted that several of the locations would require either vertical abutments to maintain a single span or that multi-span bridges would be required for span lengths greater than 140 feet. NCDOT agreed with the use of vertical abutments and noted that the structure depths included in the design manual provided flexibility in design during the later stages. Gary also agreed that it would be acceptable to use steel bridge spans as long as the structure depth was adequate to be flexible in final design.

ACTION ITEMS

- URS will revise the centerline alignment for Alternative 8 as discussed above.
- URS will provide a right-in/right-out connection from Darlington Street to Independence Boulevard, at the same location, for all alternatives.
- URS will continue with the design of the Market Street interchanges once the traffic forecast is approved with the design work potentially beginning prior to the CIW#2 being held in late September.



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- URS will modify designs as appropriate to avoid impacting Maides Park.
- URS will request a meeting to discuss the design of the auxiliary lanes and interchange at MLK Jr. Parkway once the updated traffic forecast and capacity analysis are complete.
- NCDOT will provide guidance on how to proceed with the Kornegay Avenue closure.

CC: Attendees
File



MEMORANDUM

September 4, 2012

TO: Attendees

FROM: Peter Trencansky

DATE: August 28, 2012

SUBJECT **Record of Briefing with Wilmington City Council
August 27-28, 2012
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension**

ATTENDEES

Bill Saffo	Wilmington Mayor
Earl Sheridan	Wilmington Mayor Pro-Tem
Margaret Haynes	Wilmington City Council Member
Neil Anderson	Wilmington City Council Member
Kevin O'Grady	Wilmington City Council Member
Laura Padgett	Wilmington City Council Member
Charlie Rivenbark	Wilmington City Council Member
Mike Kozlosky	Wilmington MPO
Ted Devens	NCDOT PDEA
Brian Yamamoto	NCDOT PDEA
Gary Lovering	NCDOT Roadway Design
Karen Fussell	NCDOT Division 3
Jackson Provost	NCDOT Division 3
Peter Trencansky	URS Corporation

PURPOSE

The purpose of the meeting was to brief the Wilmington City Council Members in advance of the citizens informational workshop that is anticipated to be held in early October 2012. The goal of the briefings was to present the current Detailed Study Alternatives and describe the process of alternative development. NCDOT wanted to provide an opportunity for the City Council to review the materials for the workshop, ask questions and provide insight into the best methods for outreach to the community. The meetings were held in smaller groups with Council Members



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Padgett and Rivenbark attending the August 27th briefing, Council Members Sheridan, Anderson and O'Grady attending a 10:30 briefing on August 28th and Council Member Haynes and Mayor Saffo attending an 11:30 briefing on August 28th.

MEETING NOTES

Each of the briefings included a cursory review of the Alternatives Selection Meeting PowerPoint, the Citizen's Informational Workshop #2 PowerPoint and the workshop maps for each alternative. The briefings were informal in nature and had a question and answer style format with each group sharing information with the others. The following items were discussed throughout the course of the briefings:

- Nearly all of the City Council Members stated that the scale of the proposed project being an elevated expressway was a surprise to them, but they understood why.
- City Council did state that they frequently heard from constituents that the transportation system in Wilmington was inadequate. It was also noted that making transportation network improvements was one of the highest priorities in the 2012 Community Survey.
- It was noted that minority and low income populations were abundant within the study area and that additional measures should be used to engage the community. It was also noted that the study area included a large number of renters and additional measures to alert them to the project may be needed.
- In principal the City Council understood the need for improved north-south traffic flow and the rationale behind the alternatives development process. Conversely, they noted concerns due to the scale of the project and how it would affect the local community.
- Concerns were relayed regarding the potential for the project to split the city and the visual and psychological effect of an elevated expressway with noise walls within an urban portion of the city.
- City council was supportive of the idea of providing a greenway along the corridor and felt it would be a beneficial result of the project construction.
- City Council also noted that NCDOT should be prepared to present why other options will not be able to provide adequate north-south traffic flow within Wilmington, especially an improved Kerr Avenue and Randall Parkway.

CC: Attendees
File



MEMORANDUM

September 4, 2012

TO: Attendees

FROM: Peter Trencansky

DATE: July 17, 2012

SUBJECT **Record of Briefing with City of Wilmington Staff
July 17, 2012
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension**

ATTENDEES

Don Bennett	City of Wilmington
Denys Vielkanowitz	City of Wilmington
Mike Kozlosky	Wilmington MPO
Suraiya Rashid	Wilmington MPO
Ted Devens	NCDOT PDEA
Brian Yamamoto	NCDOT PDEA
Gary Lovering	NCDOT Roadway Design
BenJetta Johnson	NCDOT Congestion Management
Anthony Law	NCDOT Division 3
Jackson Provost	NCDOT Division 3
Patrick Riddle	NCDOT Division 3
Katie Hite	NCDOT Division 3
Peter Trencansky	URS Corporation

PURPOSE

The purpose of the meeting was to brief the Wilmington City Staff in advance of the citizens informational workshop that is anticipated to be held in early October 2012. The goal of the meeting was to present the current Detailed Study Alternatives and describe the process of alternative development. NCDOT wanted to provide an opportunity for the City Staff to review the materials for the workshop, ask questions and provide insight into the best methods for outreach to the community.



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MEETING NOTES

The meeting included a review of the Alternatives Selection Meeting PowerPoint, the conceptual design traffic capacity analysis summary and the workshop maps for each alternative. The meeting was informal in nature and had a question and answer style format with each group sharing information with the others. The following items were discussed throughout the course of the meeting:

- It was requested that the multi-use path be added to the visualizations prior to the workshop.
- It was noted that lighting of the overpasses would be important and it was recommended that a commitment be made that NCDOT would investigate lighting at the appropriate time.
- It was noted that providing structures that were not inhabitable (ie: vertical abutments) would be beneficial.
- A one-way pair with northbound traffic along Covil Avenue and southbound traffic along Mercer Avenue was discussed and the reasons for eliminating the alternative were presented.
- Following the presentation of the alternatives development the group was in agreement that an at-grade option at Market Street would not be able to provide adequate traffic operations.

CC: Attendees
File



MEMORANDUM

TO: Attendees

FROM: Peter Trencansky

DATE: February 8, 2013

SUBJECT **Record of Meeting for Railroad Coordination
January 17, 2013
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension**

ATTENDEES

Roberto Canales	NCDOT Secretary's Coordinator of Strategic Initiatives
Ted Devens	NCDOT PDEA
Gary Lovering	NCDOT Roadway Design
Jim Harris	NCDOT Rail Division
Nancy Horne	NCDOT Rail Division
Omar Azizi	NCDOT Structures Management
Stephanie Ayers	North Carolina State Ports Authority (by telephone)
Peter Trencansky	URS Corporation

PURPOSE

The purpose of the meeting was to continue coordination on the railroad aspects of the Independence Boulevard Extension project. The goal of the meeting was to determine the design criteria for the railroad crossings that will be included in the preliminary design plans that are currently being developed by URS.

MEETING NOTES

The meeting included a review of the project vicinity, study area and the conceptual alternatives that were developed. In addition to the project specific graphics (attached), two additional maps were presented. One map showed the overall railroad network within the Wilmington region while the second map was a zoomed-in map that showed the Wilmington center-city area, the project study area, and existing at-grade railroad crossings. The meeting was informal in nature and had a question and answer style format with each group sharing information with the others. The following items were discussed throughout the course of the meeting:



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- The North Carolina State Ports Authority (NCSPA) appreciated the opportunity to provide input into the project and stated that there were several initiatives that may increase train traffic in the future, including a growing demand for the shipment of wood pellets. NCSPA felt that it was likely that the existing single track would be adequate to meet the future demand from the port, but that CSX would ultimately need to make the decision on the need for any additional tracks.
- It was noted that CSX had not provided an input and that because of how the crossing affects the design (due to the required reconstruction of the Randall Parkway intersection) that early coordination may be needed. Roberto Canales said that he could reach out to CSX if it was necessary in the future. Given his new position at NCDOT, Allen Pope was identified as the person who should initiate and maintain coordination of port planning needs with NCDOT Rail Division.
- The ability to develop a preliminary design that would allow for the future expansion of the railroad to two tracks was discussed. Recognizing geometric constraints for U-4434 railroad grade separations, it was determined that the preliminary design would be developed to provide a 50-foot horizontal clearance, symmetrical about the existing centerline. The vertical clearance will be 23'-0" minimum over the existing track in its current location or over either track with the two track layout, whichever layout governs. This would allow for the expansion to two tracks in the future with crash walls being provided. During final design a determination will be made on whether the crash walls will be included in the initial construction or added later if the railroad is expanded.
- A brief discussion on the multi-modal accommodations took place, including the planned incorporation of a multi-use path along the west side of Independence Boulevard throughout the project length, including two at-grade pedestrian crossings of the railroad. Nancy Horne stated that she would include this in an upcoming meeting with CSX to gage their feelings about the crossings.

CC: Attendees
File



MEMORANDUM

TO: Attendees

FROM: Joanna Rocco

DATE: June 6, 2013

SUBJECT **Record of Meeting for Division 3 and WMPO Project Status Meeting
May 30, 2013
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension**

ATTENDEES

Karen Eason Fussell	NCDOT Division 3
Katie Hite	NCDOT Division 3
Anthony Law	NCDOT Division 3
Jackson Provost	NCDOT Division 3
Patrick Riddle	NCDOT Division 3
Gary Lovering	NCDOT Roadway Design
Ted Devens	NCDOT PDEA
Brian Yamamoto	NCDOT PDEA
Mike Kozlosky	Wilmington MPO
Ed Edens	URS Corporation
Joanna Rocco	URS Corporation

PURPOSE

The purpose of the meeting was to review with the Wilmington MPO and NCDOT Division 3 staff the project status, studies recently completed/currently underway, and to discuss upcoming next steps for the project.

MEETING NOTES

The meeting included a brief review of the project history, including what has happened since the project team last met with the WMPO and NCDOT Division 3 staff. The main areas of focus the project team have been studying include the raised railroad study (due to request from Laura Padgett, TAC), project visualizations, Citizens Informational Workshop #2 preparation, a depressed



freeway concept, and preliminary designs. The following items were discussed throughout the course of the meeting:

- The purpose of the raised railroad study was discussed. The study came about because it was anticipated that the elevated nature of the proposed project would not be what the public is expecting and it will be perceived as dividing neighborhoods. Laura Padgett wants to know whether alternatively raising the RR will cause less disruption than a raised highway. It was determined through the study that raising the CSX railroad would not be feasible from a cost, traffic, and impact perspective. These conclusions should be presented in a brief (one page is possible) bulleted list summary that includes a graphic of the design. The graphic will label roads that would be closed and where it would tie into the existing network.
- URS is scoped to identify examples of elevated type freeways that can be used to illustrate the visual impact of these types of facilities have on surrounding communities, in lieu of an at-grade boulevard type facility
- The draft public workshop visualization was shown to the meeting attendees. It was discussed that the visualization may seem to some that NCDOT has predetermined developing an elevated freeway alternative. Therefore, we will mostly likely want to add a short segment that shows our consideration of depressed freeway concept and the raised railroad option as well.
- Two modifications to the visualization were noted: 1) the Kerr Avenue widening project limits need to be revised to include just south of Randall Parkway to Martin Luther King Jr. Parkway, and 2) Market Street and Independence Boulevard street names need to be labeled during the at-grade traffic simulation portion.
- The group reviewed the depressed freeway concept option and was in general agreement with the profile. Significant construction cost and maintenance concerns persist; however we will continue to move forward with a functional design, cost estimates, and relocation report.
- The meeting attendees agreed that it is best to have a design with cost & relocation numbers for the depressed freeway concept prior to going back to City Council. This will delay the Citizens Informational Workshop for several months – most likely until this fall. The group consulted the TIP schedule which shows ROD in 2016, R/W in 2019, and unfunded construction. Thus the schedule has adequate “float” to delay the CIW for this work, without affecting the critical path.
- Re-connection options to Kornegay Avenue will continue to be developed. A westward extension of McClammy Street will need to be considered. It would be preferable to remain out of merger, therefore it will be important to avoid stream/wetland impacts to the extent practicable. Note that any of these designs should consider a dedicated right-



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turn lane from NB 23rd St to Scientific Park Drive, since this is a striped-off area of pavement that could potentially be redesignated. This will need to be field-verified by URS.

- There was discussion regarding the connection to Darlington Avenue on the preliminary designs. It was decided that URS would run a traffic capacity analysis with the Darlington-Independence access point closed with a cul-de-sac. If traffic is manageable, then it can be shown this way at the public workshop. If not, then continue to show a right-in, right-out connection.
- Due to time restrictions, no meaningful discussion occurred about CIW materials or development of a Citizen Advisory Committee.

ACTION ITEMS

- URS to develop brief bulleted list summary and graphic of the raised railroad design. The graphic will label roads that would be closed and where it would tie into the existing network. A closed-roads list will be provided for the summary. As a comparison, URS will use the baseline relocations and cost of Alt 7 with TUDI, and then separately estimate the additional relocations and cost of a raised RR, and sum the two. This info will be included with the summary sheet for presentation to City Council.
- URS will continue coordination with NCDOT on the design of the depressed freeway concept with cost & relocation numbers. Once this has been completed, a meeting with the Wilmington City Council will be scheduled.
- URS to continue coordination with NCDOT on Kornegay Avenue re-connection options.
- URS will evaluate the impact of traffic operations on Market Street resulting from closing the right in/right out access from Darlington Avenue to the proposed Independence Boulevard Extension. If there is no significant reduction in level of service, then the connection to Independence Boulevard will be removed. URS to continue identifying and finding visual examples of elevated freeway examples to present to City Council, with preference to regional and then other NC examples.
- Visualization will be updated to reflect meeting comments, and will mention studies of the depressed freeway concept, as well as the Raising RR Study.
- URS to continue developing a Citizens Advisory Committee approach.

CC: Attendees
File



MEMORANDUM

TO: Attendees

FROM: Joanna Rocco

DATE: November 15, 2013

SUBJECT **Record of Meeting for Depressed Freeway Meeting
September 24, 2013
State Project 37764.1.1 (TIP U-4434)
New Hanover County
Independence Blvd Extension**

ATTENDEES

Dean Argenbright	NCDOT Geotechnical Unit
Ted Devens	NCDOT PDEA
Chris Lee	NCDOT Roadway Design Unit
Gary Lovering	NCDOT Roadway Design Unit
Jay Twisdale	NCDOT Hydraulic Unit
Brian Yamamoto	NCDOT PDEA
Richard Bird	URS Corporation (via phone)
Jennifer Byle	URS Corporation (via phone)
Leo Davies	URS Corporation (via phone)
Ed Edens	URS Corporation
Dennis Hoyle	URS Corporation
Burt Matteson	URS Corporation (via phone)
Joanna Rocco	URS Corporation
Christopher Werner	URS Corporation
Paul Zhang	URS Corporation

PURPOSE

The purpose of the meeting was to review the depressed freeway design concept with NCDOT and determine what additional information is needed to better understand construction costs to compare with other project alternatives.

MEETING NOTES

Ted Devens began the meeting with introductions and a brief overview of the project history and



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why a depressed roadway concept was developed. Due to the grade separation needed at the rail lines and the interchange needed at Market Street, the proposed project would include an elevated facility of approximately 25 feet. This is unfavorable to the Wilmington City Council because of the amount of impacts to residences, as well as visual impacts; therefore, NCDOT decided to evaluate a depressed freeway design.

Ed Edens noted that there are specific engineering challenges associated with a depressed roadway design, most notably with 1) constructability, 2) the design of a permanent facility and how to counteract the buoyancy due to groundwater, and 3) stormwater issues, e.g. isolating groundwater and pumping stormwater during flood events.

The following items were discussed throughout the course of the meeting:

- Dean Argenbright noted that the limestone layer for aquifer protection gets thicker once you cross the Cape Fear River east into the City of Wilmington, therefore, borings used in Brunswick County may not be indicative of the soil, rock and groundwater conditions at the proposed project.
- Jay Twisdale noted that a cut and cover approach could be evaluated, and this tunnel-type design could serve as a conduit for stormwater during flood events. Ed Edens noted that this type of construction has design constraints, most notably safety.
- A discussion was held regarding methods for dewatering during construction. Paul Zhang noted that the groundwater table at nearby projects varies from approximately elevation 15 to 25 feet. Ted Devens noted that we need to understand what the network of well points would be, the distance between them, and a dewatering cost estimate. Richard Bird stated that this would necessarily include a large contingency because we don't know enough about the subsurface conditions at this point. Paul Zhang noted that if we could eliminate some of the options such as concrete ballast (Option 1 on attached handout) and permanent dewatering (Option 4 on handout), two of the more difficult options, it would assist in developing a cost estimate. He also stated that deeper borings would be helpful in developing this cost estimate.
- Ted Devens noted that with whatever method for dewatering and construction is used, NCDOT Geotechnical Unit will likely be conservative in their estimate, therefore it could increase costs to the point of not making it competitive with other design options.
- URS recommended developing a cost estimate with the method of jet grouting (Option 3 on handout), using temporary shoring and dewatering. This method is the least dependent on subsurface conditions. URS cautioned that the effectiveness of this methodology is highly dependent on the skill and experience of the specialty contractor. From a planning perspective, this method would also reduce the amount of impacts.
- There was a discussion about potentially having a constructability review with Rodger



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Rochelle of NCDOT Transportation Program Management. Ideas about design of the depressed freeway could be discussed with specialty and other contractors. Constructors mentioned included Hayward Baker and Trevi Icos, as well as contractors in the area.

- The group agreed to preliminarily select jet grouting (using sheet pilings) as the construction method, so that URS could proceed with some conceptual design decisions on retaining wall width, location of drainage pipes, and cut slopes needed to place tie-backs. This in turn generates quantities for construction estimates, and allows demarcation of an area of disturbance that could be used for right of way estimates.
- The group then discussed how far back from sheet piling & cut slopes to establish the limits of disturbance. Opinions ranged from 50-75 feet; URS recommended 50-feet for now; however, this will be further investigated.
- A discussion was held regarding constructability issues at Market Street.

ACTION ITEMS

- In approximately a month's time, URS will develop answers to conceptual design questions: stormwater concepts and a construction dewatering concept, retaining wall thickness, approach to installing tie-backs (with cut slopes), detailed typical section parameters, etc.
- Pending NCDOT coordination, URS will then develop revised functional designs and excavation scheme (most likely using a jet grouting, shoring and dewatering-combined with pump station). URS should give consideration to raising the railroad as much as feasible in order to raise the mainline profile to improve constructability - balancing this need against railroad impacts. URS will establish approximate limits of disturbance, and then generate a plan sheet template that shows relocated parcels (for right of way estimate). Pump costs will include upfront costs, maintenance and operation, and consideration of lifespan.
- NCDOT to send boring info in the vicinity of the proposed project to URS. *Update: Dean Argenbright sent borings from U-0092B on 09/24/13.*
- URS to confirm lane movements between Market Street ramp terminal and Randall Parkway on preliminary designs.

CC: Attendees
File



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

**MINUTES FROM DEPRESSED FACILITY DESIGN CHECK-IN
MEETING ON OCTOBER 31, 2013**

To: Project File
From: Ted Devens, PE
Date: May 25, 2014
Subject: STIP Number U-4434, Depressed Facility Design Check-in Meeting, Independence Boulevard Extension, New Hanover County, North Carolina, WBS No. 37764.1.1

A meeting was held October 31, 2013 at 2:00 PM in the Roadway Design Conference Room at the NCDOT Century Center. Attendees of the meeting are below:

Ted Devens	NCDOT Project Development and Environmental Analysis (PDEA)
Brian Yamamoto	NCDOT PDEA
Gary Lovering	NCDOT Roadway Design
Christopher Lee	NCDOT Roadway Design
Ed Edens	URS Corporation
Chris Werner	URS Corporation

Purpose of Meeting

The purpose of the meeting was to provide NCDOT with an update on the Depressed Facility Function Design preparations and to discuss upcoming next steps for the project.

Meeting Summary

The following items were discussed throughout the course of the meeting:

- URS reviewed with NCDOT the status of the Depressed Facility Function Designs and the issues which have been encountered and how they were resolved.
- Currently, the Depressed Facility Function Designs are on the critical path for the project schedule as the right of way cost estimates cannot be prepared until the designs are completed.

- The Right of Way Cost Estimate Request will be submitted to NCDOT for all alternatives at the same time.

Action Items

- Within the next two weeks, URS will submit the Depressed Facility Draft Functional Designs for NCDOT review (with an approximate review duration of two business days).
- URS will simultaneously prepare the Right of Way Cost Estimate Request information while the Depressed Facility Draft Functional Designs are being prepared.
- Based upon the above mention timeframe, NCDOT will pre-schedule a field meeting with NCDOT Right of Way staff to assist in preparing the Right of Way Cost Estimates.
- URS will confirm the Depressed Facility Memorandum will document the number of pumps required for each pump station.

Minutes Prepared by Chris Werner, URS. If there are any questions or edits, please contact Chris Werner, URS Project Manager, at (919) 461-1470 or christopher.werner@urs.com.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

**MINUTES FROM THE NCDOT DIVISION 3 / WMPO MEETING ON
MARCH 25, 2014**

To: Project File
From: Ted Devens, PE
Date: April 25, 2014
Subject: STIP Number U-4434, NCDOT Division 3 / WMPO Meeting, Independence Boulevard Extension, New Hanover County, North Carolina, WBS No. 37764.1.1

A meeting was held March 25, 2014 at 10:00 AM at the North Carolina Department of Transportation (NCDOT) Division 3 office. Attendees of the meeting are below:

Ted Devens	NCDOT Project Development and Environmental Analysis (PDEA)
Brian Yamamoto	NCDOT PDEA
Karen Eason Fussell	NCDOT Division 3
Anthony Law	NCDOT Division 3
Jackson Provost	NCDOT Division 3
Patrick Riddle	NCDOT Division 3
Gary Lovering	NCDOT Roadway Design
Christopher Lee	NCDOT Roadway Design
Jamille Robbins	NCDOT – Public Involvement
Jay Twisdale	NCDOT Hydraulics
Ron Lucas	FHWA
Mike Kozlosky	Wilmington MPO
Chris Werner	URS Corporation
Joanna Rocco	URS Corporation

Purpose of Meeting

The purpose of the meeting was to review with the Wilmington Urban Area Metropolitan Planning Organization (WMPO) and the NCDOT Division 3 staff the project status, studies recently completed/currently underway since the last meeting on 5/30/13, and to discuss upcoming next steps for the project.

Meeting Summary

Ted Devens began the meeting with introductions and a brief review of the project history, including what has happened since the project team last met with the WMPO and NCDOT Division 3 staff on 5/30/13. The main areas of focus the project team have been studying include the raised railroad study, project visualizations, Public Meeting #2 preparation, and Depressed Facility functional designs. The following items were discussed throughout the course of the meeting:

- Ted Devens reviewed the alignments and interchange configurations for Alternative 2, 7, and 8. It was noted from past meetings with the City Council, they had general concern with elevated alternatives and the impact to the adjacent neighborhoods and businesses. URS reviewed photograph examples of elevated type freeways that could be used to illustrate the visual impact of these types of facilities have on surrounding communities in lieu of an at-grade boulevard type facility. It was discussed that photos closer to the berm from a neighborhood perspective would be helpful.
- Karen Fussell asked if the project team had considered a Single Point Urban Interchange (SPUI) configuration for the project crossing of Market Street. Gary Lovering stated that a SPUI had been analyzed during alternative development, and it was determined that the high cost and need for traffic control made this an unfeasible interchange alternative.
- Ted Devens stated that the Kornegay realignment to 23rd Street had been analyzed with several concepts, and a concept with the least amount of residential impact was chosen (Alignment C). He noted that the project team will need to decide how to present this data at the next public meeting; however, initial thoughts included showing the alternatives considered with a corresponding qualitative analysis table.
- Mike Kozlosky asked if the control of access (C/A) along Market Street could be reduced. Gary Lovering stated that there is a possibility C/A can be reduced, but we won't know until we have updated traffic. However, upon review of the preliminary designs, the C/A does not appear to extend very far along Market Street. The closure analysis of Darlington Avenue was discussed. Previous coordination with the WMPO and NCDOT Division 3 suggested that removing the Darlington Avenue connection with the Independence Boulevard Extension should be evaluated. Resulting analysis suggested that the connection should remain for all alternatives, even if it is only a right-in right-out configuration as proposed. Mike Kozlosky asked if an extension of Darlington Avenue over/under the Independence Boulevard Extension to Mercer Avenue had been considered. It was explained that an extension of Darlington Avenue over the Independence Boulevard Extension was only analyzed for the Depressed Facility due to the elevation of the mainline profile would prevent an at-grade connection. It was requested traffic operations and design evaluations be performed to see if Darlington Avenue could be extended to Mercer Avenue, with a full movement intersection, for elevated alternatives.
- The raised rail study was discussed. Chris Werner went over the raised rail graphic and design assumptions. Ted Devens pointed out that this alternative was actually higher in elevation than Alternatives 2, 7, and 8. Chris Werner noted that the Independence Boulevard portion of the raised rail alternative would be at-grade, yet the elevation would still need to be high enough to get over Market Street and Martin Luther King, Jr. Parkway. There would also be substantial visual effects from the raised rail corridor.
- Chris Werner briefly reviewed the Depressed Facility functional designs, and showed a draft visualization prepared by URS which could be used for the upcoming public meeting if the

alternative is carried forward. It was determined a more high-level review of the Depressed Facility would be more appropriate for future public meetings.

- Updated right of way, utility, and construction costs were handed out and reviewed. At the time of the meeting, the complete costs were only available for Alternatives 4, 7 and the Depressed Facility. Comparison of the initial construction cost estimates show the Raised Railroad Alternative is approximately \$40,000,000 and the Depressed Facility is approximately \$90,000,000 more expensive than other project alternatives. It was decided that the cost table (with complete updated costs) will be given at the next scheduled meeting with City Council. Noise walls were discussed. A video was shown of a noise wall used on the Woodrow Wilson Bridge in Virginia (<http://www.youtube.com/watch?v=XxHhw2ykUJU>). Jamille Robbins noted that there may be a need to have an aesthetic screening for noise walls if required. Ted Devens stated that noise walls are anticipated, but whether or not aesthetics would be added such as different colors or textures, would be up to the City of Wilmington since they will likely need to fund these additions.
- Review of the project next steps was then discussed, which includes meeting with the City Council.
 - The NCDOT STARS schedule needs to be revised. Ron Lucas noted that with the latest transportation bill, MAP-21, we may be able to combine the FEIS and ROD, therefore condensing the schedule by at least six months.
 - It was noted that at the last City Council meeting, it was asked why NCDOT couldn't build a boulevard facility. Ron Lucas confirmed that this would not be possible because FHWA will not fund a facility that will have a failing level of service.
 - Mike Kozlosky will coordinate with members of the City Council to find a date suitable for the next meeting with the project team.
 - It was suggested that the City Council needs to be presented with three options:
 - 1) the U-4434 project needs to be an elevated facility (Alternative 2, 7 or 8), or
 - 2) the City of Wilmington will need to provide additional funding for the Depressed Facility, or
 - 3) the U-4434 project will not be built.
 - Scheduling of the next Public Meeting will be discussed following feedback received from meeting with the City Council; however, initial thoughts are to meet with the TAC on a Wednesday and hold the Public Meeting on a Thursday.
 - The City Council meeting presentation should be detailed enough to provide an adequate understanding of the issues, complexities, and results.

Action Items

- NCDOT Division offices will be contacted to see if they can provide photos of any local examples of elevated facility for presentation to City Council.
- NCDOT/URS will perform traffic operations and design evaluations of a Darlington Avenue extension to Mercer Avenue, with a full movement intersection, for all elevated alternatives.
- NCDOT/URS to update alternative costs once available for presentation to City Council.
- For future reference, NCDOT Division 3 requests costs associated with preparing Raised Railroad and Depressed Facility studies.
- Mike Kozlosky to coordinate with members of the City Council to find a date suitable for the next meeting with the project team.

U-4434: NCDOT DIVISION 3 / WMPO MEETING

March 25, 2014

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Minutes Prepared by Joanna Rocco, URS. If there are any questions or edits, please contact Chris Werner, URS Project Manager, at (919) 461-1470 or christopher.werner@urs.com.

MEETING SUMMARY



To: Project File

From: Celia Foushee
AECOM

Date: June 10, 2016

RE: **U-4434 City of Wilmington Project Update**
NCDOT STIP Project U-4434(Independence Boulevard)

The project team met with the Mike Kozlosky at 9:00 AM on June 9, 2016 at the City of Wilmington office complex in Wilmington, North Carolina. The purpose of the meeting was to discuss the project status, schedule, and any new information regarding the project. Attendees included Mike Kozlosky, City of Wilmington; John Conforti, NCDOT PDEA; Chris Werner, AECOM; Joanna Rocco, AECOM; and Celia Foushee, AECOM.

Discussion points are summarized below:

- Chris Werner began the meeting by providing Mike Kozlosky an update of the contract status. The contract supplement is expected to be approved early July. Once this is approved, the next Task Order will be scoped and negotiated. It is anticipated this Task Order will include updating the remaining technical reports and preparation of the Preliminary DEIS.
- Chris discussed the remaining technical reports to be completed before compiling the Preliminary DEIS, which include the Air and Noise Analysis, Community Impact Statement, and Land Use Scenario Assessment. It is anticipated it will take approximately six to nine months to complete the remaining technical reports and the Preliminary DEIS.
- Mike Kozlosky state the City of Wilmington is in the process of purchasing piece of property owned by the housing authority, which is located in the northern portion of the project study area. This property is currently vacant and wooded and the City would like to use part of the property for an indoor firing range. The City is currently developing conceptual plans for both Alternatives 7 and 8 for the firing range facility; however, the City would prefer Alternative 8 with regard to the amount of developable land available; however, this alternative would have more residential and environmental impacts for the Independence Boulevard extension.
- Mike Kozlosky stated the City of Wilmington and NCDOT are working together to develop Scientific Park Drive to connect to 26th Street using Economic Development funds. Calyx Engineers is the consulting firm.
- Mike Kozlosky stated Moffat and Nickel is the consulting firm selected for the CSX Rail Realignment Feasibility Study. The study is estimated to be completed in nine months. Some members of the Wilmington MPO would like the project to move forward as soon as the study is complete. Mike stated there will be many challenges associated with this study. This study will likely have effects on the designs of the Independence Boulevard project; however it should not affect selecting a preferred corridor alignment.

MEETING SUMMARY

June 10, 2016

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- Chris Werner asked if the City of Wilmington has completed (or would complete) a system level analysis. Mike Kozlosky responded the City has not initiated a system level analysis for this project as of yet.
- Mike Kozlosky stated the project was broken up in the current STIP in the hopes that it would score better for funding at the division level. It was broken at Market Street. Mike confirmed the TAC is still interested in the project.
- Mike Kozlosky stated the City would like to see a Recommended Preferred Alternative named in the Preliminary DEIS so they have only one alternative to plan around, as opposed to several. This will also simplify the project for the public.
- The project team will move forward writing the Preliminary DEIS without a Recommended Preferred Alternative identified and will wait to see how the project scores at the Division level in SPOT 4.0 and how the CSX Feasibility study may affect the project. Once additional information is provided, the project team will coordinate to determine if a Recommended Preferred Alternative should be included in the Preliminary DEIS.

Action Items

- Mike Kozlosky will confirm if the City of Wilmington has taken ownership of the property owned by the housing authority.
- The City of Wilmington will provide the project team the conceptual designs for the indoor firing range facility when available.
- Mike Kozlosky will provide the project team the economic development package submitted for the expansion of Scientific Park Drive.
- In August more information will be available regarding funding at the regional level in the current SPOT 4.0. In October more information will be available regarding funding at the division level.
- The project team will coordinate with Mike Kozlosky as the project progresses to determine when a TAC update may need to be provided.
- The project team will coordinate with Mike Kozlosky to provide information on a new multifamily residential development under construction at Darlington Avenue and Covil Avenue.
- The project team will coordinate with Mike Kozlosky to determine if the Port South Village has been closed down and if there are any plans for the property.

MEETING SUMMARY



To: Project File

From: Celia Foushee
AECOM

Date: March 14, 2017

RE: **Project Update Meeting with NCDOT Division 3 and WMPO
NCDOT STIP Project U-4434 (Independence Boulevard)**

Meeting Attendees:

Mike Kozlosky – WMPO	John Conforti – NCDOT PDEA
Chad Kimes – NCDOT Division 3	Chris Werner – AECOM
Katie Hite – NCDOT Division 3	Joanna Rocco – AECOM
David Leonard – NCDOT Division 3	Celia Foushee - AECOM
Alan Pytcher – NCDOT Division 3	

The project team met with NCDOT Division 3 and the WMPO at 9:00 AM on March 10, 2017 at the NCDOT Division 3 office complex in Castle Hayne, North Carolina. The purpose of the meeting was to discuss the project status, schedule, and any new information regarding the Independence Boulevard Extension project.

Chris Werner began the meeting with a summary of the project status. The proposed project has been screened out of the Merger Process. The traffic forecast is currently being updated which could alter the designs. With the current designs, the majority of the impacts associated with the project would be to the human environment. The biggest constraints of the project are the railroad crossings and the required elevation. In previous meetings with the City Council, consensus was not met regarding the proposed elevated roadway for the Independence Boulevard project. It was noted additional discussion will be needed to determine the level of agreement towards the project now.

Environmental Justice was noted as an issue associated with the proposed project, due to the lack of comparable affordable housing within the City of Wilmington.

It was noted the Market Street median project limits extend from approximately 29th Street to Martin Luther King Jr. Parkway. A portion of this project is within the Independence Boulevard project limits. The preliminary designs and technical documents have been completed for the Market Street median project, however the traffic forecast will be updated. It was noted the original forecast did not include the Independence Boulevard project in the scenarios since the project was not funded. HNTB is completing the traffic forecast. It was noted the updated traffic forecast for Independence Boulevard would also include scenarios with and without the Cape Fear Crossing project.

MEETING SUMMARY

March 14, 2017

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It was noted the Independence Boulevard project could potentially delay the Market Street median project. The Market Street project is scheduled for let in December of 2020. The Independence Boulevard Draft EIS is tentatively scheduled to be complete in fall/winter 2019, the Final EIS completed in summer/fall 2021, and the Record of Decision completed in Winter 2021/2022. It was noted this is a draft worst case scenario schedule.

It was noted the modifications to Kornegay Avenue and Scientific Drive can be removed from the Independence Boulevard project designs; these modifications will be made as a part of improvements to Scientific Drive.

The CSX rail realignment feasibility study being developed by the City of Wilmington, NCDOT, and the WMPO was discussed. It was agreed the study will not likely have any bearing on this project, as it is in the feasibility stage only, and if found feasible the rail would not likely be realigned within the next 20 years.

It was noted the Independence Boulevard project would become a Division-led project in the future, and that Katie Hite would be the Division 3 point of contact for the project until she has assigned it to additional staff. She requested that she and Chad Kimes be copied on all major correspondence regarding the project from this point forward.

The potential of having the project changed to a state-funded project, and therefore making the US Army Corps of Engineers the lead agency, was also discussed. The project team will continue coordination with NCDOT to determine how the project will be funded.

Action Items

- AECOM will send copies of the Independence Boulevard project designs to Carla Schoonmaker at Division 3. Copy Jamie Byrd with HNTB.
- Division 3 will send AECOM the typical section information for the Market Street median project.
- The City of Wilmington will provide the project team the conceptual designs for the indoor firing range facility when available. *Update: Conceptual designs were provided via email on 3/13/2017.*
- AECOM will send Division 3 an updated best case scenario draft schedule.

MEETING SUMMARY



To: Project File

From: Joanna Rocco
AECOM

Date: May 28, 2017

RE: **Project Scoping Meeting**
NCDOT STIP Project U-4434 (Independence Boulevard Extension)

Meeting Attendees:

Don Bennett – City of Wilmington	Kevin Bowen - NCDOT Division 3 Construction
Mike Kozlosky – WMPO	James Harris – NCDOT Rail Division*
Brad Shaver – US Army Corps of Engineers	Meredith McLamb – NCDOT Rail Division*
Mason Herndon – NCDOT Division 3	Neil Perry – NCDOT Rail Division*
Katie Hite – NCDOT Division 3	Richard Mullinax – NCDOT Rail Division*
Chad Kimes – NCDOT Division 3	Jahmal Pullen – NCDOT Rail Division*
David Leonard – NCDOT Division 3	Jamille Robbins – NCDOT Public Involvement*
Carla Schoonmaker – NCDOT Division 3	Stephanie Ayers – NC Ports Authority
G. M. Taylor - NCDOT Division 3 Maintenance	Phillip Rogers – HDR
Max Radford - NCDOT Division 3 Right of Way	Josh Massrock – HDR
Eric Ray - NCDOT Division 3 Right of Way	Chris Werner – AECOM
Lonny Sleeper - NCDOT Division 3 Utilities	Joanna Rocco – AECOM
Rick Neal – NCDOT Location & Surveys	Celia Foushee – AECOM
Jessi Leonard - NCDOT Division 3 Traffic	Morgan Foster – AECOM
Anthony Law - NCDOT Division 3 Construction	

**joined via telephone*

NCDOT Division 3 held a project scoping meeting for the U-4434 Independence Boulevard Extension project on May 23, 2017 at the at the NCDOT Division 3 office complex in Castle Hayne, North Carolina. The most current version of the project scoping data sheet is appended to these minutes. Discussion regarding items on the scoping sheet and other topics are summarized below.

Railroad Involvement

- NCDOT provided an update to the recent rail studies being prepared:
 - The traffic separation study by the City of Wilmington and NCDOT was prepared due to the projected increase in freight traffic within the City of Wilmington. It provided data on the near-term, mid-term, and long-term improvements for the CSX rail line and was completed in February 2017. The study did not address the subject project. It was noted

MEETING SUMMARY

May 28, 2017

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that in order to provide a new at-grade crossing, CSX requires other crossings to close and a panel must review these requests.

- The rail realignment feasibility study is currently being prepared by the WMPO, the City of Wilmington, and the NCDOT and is almost completed. The study includes the feasibility and cost of the rail realignment as well as the repurposing of the current rail line within the City of Wilmington as a multimodal facility. It was noted AECOM prepared a letter on behalf of CSX in 2013 responding to the NCDOT's request for scoping comments from CSX (see attached).
- It was noted the City of Wilmington and the WMPO endorsed resolutions opposing an elevated facility and supported preparing the environmental document for the project. It was also noted that the index rate justified grade separations and were therefore included in the preliminary designs for the project.
- Any additional contact with CSX moving forward should be coordinated through Carla Schoonmaker.

Planning

- The STIP indicates project cost to be approximately \$155million. It was noted the utilities costs may be underestimated.
- A discussion was held regarding the type of environmental document anticipated for the project. Due to the high number of relocations and environmental justice issues, the document will need to be an Environmental Impact Statement/Record of Decision.
- While the project was screened out of the NEPA/Section 404 Merger process, the project team agreed to have Concurrence Point (CP) 2 and 2A meetings with the agencies.
- NCDOT noted the wetland and stream delineations will likely need to be reverified.
- It was determined the project should remain a federally-funded project with FHWA as the lead agency. NCDOT will set up a meeting with Ron Lucas of the FHWA to determine steps moving forward.

Public Involvement

- An open house public meeting will need to be held in order to inform the public of the project status and alternative concepts. It has been several years since the project team has met with the public.
- A corridor public hearing will be required after the Draft Environmental Impact Statement (DEIS) has been issued. A design public hearing is not required after the Final Environmental Impact Statement (FEIS), but NCDOT noted it is in the project team's best interest to provide one for the public to review final designs and provide comments.
- NCDOT noted that there is an environmental justice community within the project study area, therefore there should be targeted outreach to these populations. This may be accomplished by distributing door hangers to neighborhoods notifying residents of public meetings being held, as well as potentially providing additional public meetings in these areas.
- NCDOT requested the project team provide a copy of the Public Involvement Plan.
- It was noted AECOM has prepared a project visualization and will provide a link of the video to NCDOT.

Traffic and Design

MEETING SUMMARY

May 28, 2017

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- AECOM is currently preparing an updated traffic forecast, which is estimated to be finalized in July 2017. Once completed, a traffic capacity analysis will be completed and designs updated.
- It was noted the updated traffic studies will determine if there is still justification for an interchange at Market Street as currently designed, or if an at-grade intersection is acceptable.
- The design at Martin Luther King, Jr. Parkway will need to focus on how to best fit within the context of the natural systems in the area. Design refinement in this area will focus on design speeds and how that could potentially reduce the footprint in this area.
- Discussion was held regarding concern expressed from the local government about the Independence Boulevard Extension project being elevated for the length of the project. It was noted the current designs show this due to having to elevate the roadway over the two rail crossings, Princess Place Drive, and the interchange at Market Street.
- An updated forecast was prepared for U-4902B (Market Street improvements from Colonial Drive to SR 1272), and will be provided to AECOM. A portion of the U-4902B project will become part of the U-4434 project (Colonial Drive to the railroad track) and should be included as part of the design refinements.
- It was noted the modifications to Kornegay Avenue and Scientific Drive can be removed from the Independence Boulevard project designs; these modifications will be made as a part of improvements to Scientific Drive.
- Updated surveys may wait until 2018, approximately one year prior to HDR developing final designs.

Miscellaneous

- It was noted the WMPO requested a multi-use path on the east side of the facility. This is included in the current preliminary designs.
- It was noted there is a police and fire range facility being built within the project study area. The City of Wilmington is using Alternative 7 with a Tight Urban Diamond Interchange in their plans.
- The accelerated ROW date for the project is 2022, and must be met so the project will not need to go through the prioritization process again. It was noted this was realistic and AECOM will provide an updated schedule. It was also noted coordination with the Wilmington City Council would be necessary to determine if there are any major issues.
- AECOM will continue planning and design studies for the project. HDR will assume final design development once AECOM has begun preparation of the FEIS.
- AECOM's contract with NCDOT for the project is a stand-alone contract. Future invoices may be sent to the division. AECOM will send NCDOT a contract summary with amounts of the original contract and supplementals.
- AECOM currently has an open task order and will send the scope of work to NCDOT in order to determine how the task order may be used moving forward.

Action Items

- AECOM to provide a copy of the Public Involvement Plan to Jamille Robbins.
- AECOM to provide a link to the project visualization to NCDOT. *Update: AECOM sent link of project visualization to NCDOT on May 24, 2017.*
- AECOM to send NCDOT a contract summary with amounts of the original contract and supplementals.
- AECOM to send all email correspondence to Carla Schoonmaker, and she will disseminate to other NCDOT staff as necessary.
- AECOM to send NCDOT an updated schedule; the schedule must be approved by July 5, 2017.

MEETING SUMMARY

May 28, 2017

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- AECOM to send NCDOT a monthly update by the fifth day of each month.
- AECOM to send NCDOT a copy of latest task order scope of work for use in discussions of project scope moving forward.
- AECOM and NCDOT to set up a standing weekly coordination call. It was suggested Friday mornings may be the best time. *Update: Carla Schoonmaker set up a conference call with AECOM for Friday mornings at 9am beginning June 2, 2017.*
- NCDOT to provide updated forecast for U-4902B (Market Street improvements from Colonial Drive to SR 1272) to AECOM.
- NCDOT will set up a meeting with Ron Lucas of the FHWA. *Update: A meeting has been set up for May 31, 2017 at 11am at the NCDOT Division 3 office.*

U-4434 – Scoping Data Sheet

May 23, 2017

TIP: U-4434
 WBS: 37764.1.1
 NCDOT PM: Carla Schoonmaker

County: New Hanover
 F.A.: STPDA-1209(5)
 Design PEF: AECOM / HDR

Project Description

- Length: 1.8 mi.
- Project Limits: Independence Boulevard Extension from Randall Parkway to US 74 (Martin Luther King, Jr. Parkway)
- Right of Way Date: FY 2022
- Let Date: FY 2025
- MPO / RPO: Wilmington MPO
- Municipality: City of Wilmington, New Hanover County
- General Description of Project: Independence Boulevard Extension on new location from Randall Parkway to Martin Luther King, Jr. Parkway

Design Data

- Functional Classification: Other Principal Arterial
- Type of Access Control: Partial
- Typical Section: Four Lane Divided w/C&G
- Right of Way: 100'-150'
- Design Speed: 40, 50
- Posted Speed: 35, 45
- AADT:

	MLK Jr. Pkwy (West of Ind. Blvd. Ext.)	MLK Jr. Pkwy (East of Ind. Blvd. Ext.)	Fut. Ind. Blvd. (from Randall to Market)	Future Ind. Blvd. (from Market to MLK Jr. Pkwy)	Market Street (West of N. 30 th St.)	Market Street (East of Henry St.)	Randall Pkwy
Current Year 2012 (No Build)	33,900	33,900	n/a	n/a	30,300	34,900	16,800
Design Year 2040 (Build)	79,600	81,500	49,000	52,300	37,100	32,100	27,700

Note: Traffic data shown is from the 2012 Traffic Forecast. Given the WMPO Travel Demand Model has since been updated. An updated traffic forecast is currently being prepared.

- Railroad Involvement: Yes No
- Design Exception: Yes No To be determined

Other TIP Project(s) in the Area:

- U-5869 US 17 Business (Market Street)
- U-4902 B, C, & D US 17 Business (Market Street)
- U-3338 B&C SR 1175 (Kerr Avenue)
- U-5880 US 74 (Martin Luther King Jr. Boulevard)
- U-5702A NC 132 (College Road)
- U-5792 US 74 (Martin Luther King Jr. Boulevard)
- U-4751 (SR 1409 Military Cutoff Road)
- B-4590 NC 133 Bridge replacement over Smith Creek

Cost Estimates (per STIP unless otherwise noted)

- Utilities: \$600,000
- Right of Way: \$74,300,000
- Construction: \$80,726,000
- Total: \$155,626,000

Discussion Topics

Planning

- Type of Document: MCDC CE EA/FONSI FEIS/ROD
- NEPA / 404 Merger Candidate? Yes No Screening meeting needed

Public Involvement

- Study Area Public Workshop? Yes No
- 25% Plan Public Workshop? Yes No
- 65% Plan Public Workshop? Yes No
- Public Hearing Required? Yes No Unknown
- Visualization? Yes No

Design

- Field Inspections? FDFI/PLFI CFI
- Bicycle and Pedestrian Facilities: Yes No
- Traffic Management Plans: Yes No
- ITS: Yes No
- Aesthetic Enhancements: Yes No
- Landscaping: Yes No

Disciplines for PEF to provide:

- Planning
- Traffic Forecasting
- Traffic Capacity Analysis
- Public Involvement (Coordinate with Division Staff)
- Roadway Design
- Hydraulic Design
- Structure Design
- Traffic Design (Signs, Signals, Pavement Markings, Traffic Control, ITS)
- Erosion Control
- Utility Design
- Utility Coordination
- GeoEnvironmental
- Right of Way Acquisition
- Landscaping

Disciplines for NCDOT to provide:

- Surveying
- Pavement Design
- Geotechnical Design

Important Upcoming Submittal Dates:

- May 30, 2017 – Meeting Minutes Due
- May 30, 2017 – Scope of Services Due (Task Order #1)
- June 6, 2017 – Provide Survey Limits to Rick Neal, Division 3 Locating Engineer (jrneall@ncdot.gov)
- June 13, 2017 – Manday Estimate Due (Task Order #1)
- June 20, 2017 – Anticipated Notice to Proceed (Task Order #1)
- July 5, 2017 – Approved Project Schedule Due
- Fifth day of each month – Monthly Update Due

General Notes:

- **Submittals shall be in accordance with the “Guidelines to Be Used by Consultants for Producing Roadway Plans” unless otherwise directed. Guidelines can be found at: <https://connect.ncdot.gov/projects/Roadway/RoadwayDesignAdministrativeDocuments/Roadway%20Design%20Consultant%20Coordination%20Guidelines.pdf>**
- **Manday estimates shall be generated using approved salary rates by PSMU for the Eastern On-Call Limited Services Contract. Failure to do so will likely result in delay of Notice to Proceed.**
- **All submittals shall be sent directly to NCDOT PM for distribution and review.**
- **Please submit 10 full-size plan sets for preliminary plan and field inspection reviews.**
- **Right of way and construction estimates shall be submitted with each plan submittal, excluding 15% plans.**



AECOM
1700 Market Street
Suite 1600
Philadelphia, PA 19103
www.aecom.com

215 735 0832 tel
215 735 0883 fax

February 26, 2013

TRANSMITTED VIA EMAIL

Mr. R. Allen Raynor, Jr., PE
Assistant State Structures Engineer - Program and Policy
NCDOT - Structures Management Unit
1581 Mail Service Center
Raleigh, NC 27699

SUBJECT: Wilmington, New Hanover County, North Carolina - Proposed Independence Boulevard extension, including two (2) new bridges over CSXT; Mileposts ACB-245.91 and ACB-247.28, Florence Division, Wilmington Subdivision, Wilmington Belt Line, CSXT OP# NC0700; NCDOT Project No. 37764.1.1 (U-4434)
Project Scoping Letter Response

Dear Mr. Raynor:

Reference is made to the North Carolina Department of Transportation (NCDOT) Project Scoping letter dated November 1, 2011 requesting information regarding the CSXT right of way and track in the vicinity of the subject project. AECOM, on behalf of CSXT, has reviewed the request and provides the following information:

1. Per the above subject project description, the proposed project impacts the CSXT Florence Division, Wilmington Subdivision's Wilmington Belt Line at two (2) separate locations at approximate Milepost ACB-245.91 and ACB-247.28. The CSXT tracks are east west through the northern limits of the subject project as well as through the southern limits of the project. The CSXT Mileposts increase from West to East through the northern portion of the subject project (ACB-245.91) until a wye is reached in the vicinity of Westig Road. From that wye, the CSXT Mileposts continue to increase from East to West through the southern portion of the subject project (ACB-247.28).
2. Please note that generally 2 freight trains per day pass through the two (2) separate project areas operating at a maximum timetable speed of 20 MPH. It is anticipated that freight rail traffic through this area may increase in the future depending on the economic development and freight transportation demands associated with the Port of Wilmington.
3. At this time, CSXT will require at least 25'-0" minimum horizontal clearance from the centerline of the existing track to the proposed NCDOT piers/abutments provided that crashwalls will be designed in order that CSXT maintain the ability to construct an additional track at the subject project location and have the ability to operate double stack trains through this project location. The standard 23'-0" minimum vertical clearance shall be provided, measured from top of high rail to lowest point of the proposed structure in the horizontal clearance envelope which extends 6'-0" either side of the centerline of the existing track. Please note that CSXT's future plans regarding this area are subject to change based upon future Port and economic development.

When NCDOT determines which of the alternative proposed alignments for the Independence Boulevard extension is to be used and the subject project plans are available, please provide two (2) sets of the plans of the preferred alignment to this AECOM office for our review.

Please do not hesitate to contact me at (215) 789-2158 with any questions or comments.

Sincerely yours,

Patrick J. DesMarais
Project Manager



PROVIDING ENGINEERING SERVICES FOR



U-4434 Division 3 Scoping Meeting (05/23/2017)

Name	Company	Phone	Email Address
Carla Schoonmaker	NC DOT DIV. 3 DR	910-341-2000	cschoonmaker@ncdot.gov
Phillip Rogers	HDR	(919)-232-6670	Phillip.Rogers@hdrinc.com
Josh Massocke	HDR	(919)-232-6631	Joshua.Massocke@hdrinc.com
Kirk NEAL	ETS Unit	910-341-2280	JNEAL@ncdot.gov
Mason Henderson	Div 3 Environment	910-341-2000	Mhenderson@ncdot.gov
C.M. Taylor	NC DOT TRS MAINT	910-341-2000	cm.taylor@ncdot.gov
MAX RADERD	NC DOT DIV 3 RIGHT OF WAY	910-341-2100	maxraderd@ncdot.gov
Lowry Steyer	NC DOT DIV 3 UTILITIES	910-341-2000	lsteyer@ncdot.gov
ERIE RAY	NC DOT DIV 3 R/W	910-341-2100	eray@ncdot.gov
David Leonard	NC DOT	910-341-2000	dbleonard@ncdot.gov
Jessi Leonard	NC DOT - Traffic	910-341-0800	jleonard@ncdot.gov
Anthony Law	NC DOT - Const	910-341-2000	alaw@ncdot.gov
Celia Foushee	AECOM	919-854-6255	celia.foushee@naaboa.com
Chris Werner	AECOM	919-239-7168	christopher.m.werner@aec.com
Joanna Rocco	AECOM	919-239-7179	joanna.rocco@aec.com
Mike Kozlosky	WMPO	910-342-2781	mike.kozlosky@wilmington.gov
DON BENNETT	CITY OF WILMINGTON	910-341-0089	don.bennett@wilmington.nc.gov
Kevin Bowers	NC DOT - Div. 3 Const.	910-341-2000	kbowers@ncdot.gov
Katie Hite	UCDOT	910-341-2000	kehite@ncdot.gov
Morgan Foster	AECOM	919-919-854-6205	morgan.foster@aec.com
James Harris	NC DOT Rail Division	919-707-4704	jharris@ncdot.gov
Meredith McLamb	"	919-707-4132	mmclamb@ncdot.gov
Neil Perry	"	919-707-4711	nlperry@ncdot.gov
Richard J Mullinax	"	919-707-4123	rcmullinax@ncdot.gov
Johnnie Pullen	"	919-707-4102	jpullen@ncdot.gov
Stephanie Ayers	NC Ports	910-251-7073	sayers@ncports.com
Jamille Robbbs	Human Environment Unit	919-707-6085	jarobbbs@ncdot.gov

Call h

Brad Shaver

USACE-Wilmington 910-251-4611

brad.e.shaver@usace.army.mil



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

May 22, 2017

Memorandum

To: Ms. Carla M. Schoonmaker
Assistant DDC Engineer
NCDOT Division 3 Division Design Construct

From: James B. Harris, PE
State Railroad Coordination Engineer
NCDOT Rail Division

State Project: U-4434
F/A Project: STPDA-1209(5)
WBS No: 37764.1.1
Counties: New Hanover
Description: Independence Blvd Extension on new location from Randall Parkway to Martin Luther King, Jr. Parkway

Subject: Start of Study Scoping Meeting

The NCDOT Rail Division is in receipt of the Start of Study scoping information on the above subject project. After review of the project scoping information and location of the project in relation to nearby railroad tracks it has been determined that significant rail interaction has and will occur in the future on this project and involve a number of staff in the Rail Division.

The NCDOT Rail Division has the following comments in regard to rail impacts and issues on this project:

- Independence Blvd Ext will twice cross an existing CSX rail line that provides access to the NC Port. This rail line is part of a network of rail lines in the Wilmington area (please see attached maps).
- The CSX ACB-line and the "CSX track to State Port" are the two tracks involved. Both are single track and a total of 5.5 miles long.
- There are two existing at-grade railroad crossings in the near vicinity of where Independence Blvd will cross these tracks. They are:

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
1553 MAIL SERVICE CENTER
RALEIGH, NC 27699-1553

Telephone: (919) 707-4700
Fax: (919) 715-6580
Customer Service: 1-877-368-4968

Website: www.ncdot.gov
www.ncbytrain.org

Location:
1 SOUTH WILMINGTON STREET
RALEIGH, NC 27601

1. Princess Place Drive (CSX ACB-line), milepost ACB 245.91, crossing #629288B, two lanes protected by signals/gates with sidewalks on both sides of the street.
 2. Covil Street, (CSX track to State Port), milepost ACB 247.28, crossing #629426M, two thru lanes and right turn lane (northbound) protected by signals/gates.
 3. Both of these crossings will be significantly changed vs their existing conditions/purpose with the Independence Blvd Ext project.
- Two to four freight trains per day currently operate over the rail line at 10 mph, no passenger trains.
 - Railroad right-of-way (r/w) width on the ACB-line is 130 feet wide (65 feet each side the centerline of track). R/W width on the CSX track to the State Port varies from 50 to 100 feet wide depending on location. Railroad valuation (or r/w) maps are attached.

Preliminary/advance rail coordination on U-4434 back in 2011-2013 led to considerable discussions on the following:

- History of the project and discussion up to end of November 2012 is attached for your information. Please use whatever portions you need to familiarize yourself with the project and past rail coordination.
- Major issue was in regard to the number of tracks that would be required to serve the port. In coordination with the NC Port, it was determined that the existing one track is all that is needed and CSX concurred.
- There was also discussion in regard to additional and slow-moving trains (related to expanding NC Port operations/business) moving through this area. There had already been previous concerns expressed several years prior about trains blocking vehicular traffic at the numerous existing at-grade railroad crossings along the line as well as concerns by the Rail Division and CSX about the number of at-grade crossings. This would have been a more critical concern had there been a need to add additional tracks (sidings) to store rail cars or to allow one train to pass another train. In that regard, a Traffic Separation Study (TSS) was initiated between the City of Wilmington and Rail Division to investigate improvements to traffic and safety associated with the **existing** at-grade railroad crossings and whether or not the number of crossings could be reduced. That study has been completed and approved by the City of Wilmington and is available for reference at the following link: http://wdc.wmpo.s3.amazonaws.com/wp-content/uploads/2017/03/Final-Wilmington-TSS_3-6-17noappendixRS.pdf. The study recommends approximately \$11 million in improvements to the **existing** crossings but no grade separations at the request of the City of Wilmington. The extension of Independence Blvd (U-4434) and two new crossings of CSX by this project were **not** included in the study since that project was inactive at the time. Mr. Kumar Trivedi, PE, 919-707-4109, is the Rail Division contact if you need more information on the TSS and results.
- There was also discussion during the advance railroad coordination about whether Independence Blvd Extension should be at-grade with the track or grade separated but no decision was made in 2013.

- Concerns over increased rail traffic on the rail line and impacts on the neighborhood also led to a study to re-investigate a previous suggestion to study a new rail crossing over the Cape Fear River to provide access to the NC Port vs the existing circuitous route and eliminate it. The City of Wilmington, the Wilmington Urban Area Metropolitan Planning Organization and the NCDOT agreed that a study be performed to investigate the engineering and economic feasibility of relocating the existing CSXT railroad line that traverses in a “V” shape through the City of Wilmington to the CSXT Davis Yard west of town. The “Wilmington Rail Relocation Feasibility Study” is looking at providing a new rail crossing over the Cape Fear River from the Port to the CSXT Davis Yard in Navassa and offer the potential of repurposing the existing CSXT railroad corridor for transit use. The final draft of the Study is being revised with anticipated completion and availability for reference in early July. Arthur Petteway, PE, 919-707-4717, is the Rail Division contact if you need more information on the study.
- There has also been discussion about a congestion reduction goal by upgrading the rail line to allow train speeds to increase from 10 mph to 20-25 mph to reduce the amount of time required for trains to traverse the line as well as the time the crossings are blocked. This study also works in conjunction to provide some of the improvements identified in the TSS. The feasibility study for this project is due around August 2017 but is dependent on coordination with CSX and addressing some bridge issues. Mr. Matthew Simmons, PE, 919-707-4117, in the Rail Division can be contacted about the details of that study.

The rail impacts associated with the Independence Blvd Extension project (U-4434), particularly in regard to the type of crossing (at-grade or grade separated) will have to be evaluated in the U-4434 project since that was not part of the TSS or earlier work. The Independence Blvd Extension crossing in the vicinity of the Princess Place Drive crossing (milepost ACB 245.91) would be an entirely new crossing. The Independence Blvd Extension crossing at the existing Covil Street crossing (milepost ACB 247.28) would essentially be a widened crossing. It is understood that the Independence Blvd Extension is projected to have 50,000 ADT.

It will be extremely difficult to get CSX to agree to a new at-grade crossing, particularly considering the number of vehicles involved. They do have a process that must be followed to pursue such an alternative. Mr. Jahmal Pullen, PE, 919-707-4102 and staff in his unit would be the best contact to discuss the issues associated with obtaining new at-grade crossings.

In conjunction with widened crossings, Railroads desire that any highways with at-grade crossings that are widened to multiple lanes (due to increased traffic) be considered for grade separation from the railroad. As noted above, there is also the possibility that railroad traffic can increase depending on rail business demands such as at the NC Port. By grade-separating the crossing, safety and travel efficiency for both vehicles (including school buses, emergency services,

etc) and trains can be improved as a direct result of removing the train-car conflict.

In consideration of such, NCDOT has developed general guidelines to establish the desirable conditions for highway/railroad grade separations that should be implemented with sound engineering judgement, reasonableness, and attention to costs. The "Rail Grade Separation Guidelines" (see attached) are based on the use of an exposure index, which is a product of the number of trains per day and the projected average daily highway traffic. A grade separation needs to be considered/investigated on any project where the exposure index exceeds the established limits. The 50,000 ADT projected for Independence Blvd Extension far exceeds the exposure index.

The most appropriate place to investigate and document the effects of a grade separation is in the project environmental document. The following should be performed:

- Determine if a grade separation is even possible from an engineering standpoint. At a minimum, a functional design consisting of horizontal alignment and vertical profile should be developed for road-over-RR or road-under-RR to identify the approximate grades required and which option is most feasible and minimizes impacts. Embankment and cut slope limits can be developed which provide the project footprint.
- If engineering is acceptable, the environmental impacts to wetlands, historic properties, subdivisions, commercial districts, R/W needs, etc need to be determined.

If a grade separation is acceptable and required by the railroad, Mr. Kevin Fischer, 919-707-6514, NCDOT Structures Management Unit, would coordinate all designs and agreements with CSX for the grade separations.

There are times when engineering and environmental issues eliminate a grade separation from consideration even if the exposure index is exceeded. The above results provide good support documentation that a grade separation was considered (as recommended by NCDOT policy), for why a grade separation was not pursued, and for future discussion with the railroad.

If for some reason a grade separation is possible from an engineering and environmental standpoint but a decision is made to only pursue it in the future, it may be desired to at least identify the R/W needed for a grade separation in the future and preserve it now as part of the project.

If a widened crossing is pursued instead of a grade separation, it will have to be approved by CSX and railroad encroachment/construction agreements obtained from the owner/operator. If at-grade crossings are allowed by CSX, the following Rail Division staff would be involved:

1. Meredith McLamb, 919-707-4132, is the Rail Division manager who handles encroachment agreements with CSX for new or revised at-grade crossings or other encroachments on railroad property.

2. Richard Mullinax, PE, 919-707-4123, is the Rail Division manager who provides information and handles the designs for any new crossing signals and gates associated with at-grade crossings.

The data provided in this letter is for information only and should be verified, or any additional information obtained, during the environmental and preliminary design process. The Rail Division staff noted above should be kept informed and involved as the project progresses.

Thank you for keeping the Rail Division involved in the early project planning stages. Please call me at 707-4707 if you have any additional questions or need any additional information.

Cc: Sandra Stepney, PE, NCDOT Rail Division
Neil Perry, PE, NCDOT Rail Division
Cheryl Collins, NCDOT Rail Division
Arthur Petteway, PE, NCDOT Rail Division
Jason Orthner, PE, NCDOT Rail Division
Matthew Simmons, PE, NCDOT Rail Division
Brad Smythe, PE NCDOT Rail Division
Richard Mullinax, PE, NCDOT Rail Division
Jahmal Pullen, PE, NCDOT Rail Division
Kumar Trivedi, PE, NCDOT Rail Division
Nancy Horne, PE, NCDOT Rail Division
Mr. Kevin Fischer, PE, NCDOT Structures Management Unit

MEETING SUMMARY



To: Project File

From: Celia Foushee
AECOM

Date: June 8, 2017

RE: **NCDOT & FHWA Meeting**
NCDOT STIP Project U-4434 (Independence Boulevard Extension)

Meeting Attendees:

Ron Lucas - FHWA	Joanna Rocco – AECOM
Mason Herndon – NCDOT Division 3	Celia Foushee – AECOM
Katie Hite – NCDOT Division 3	Morgan Foster – AECOM
Carla Schoonmaker – NCDOT Division 3	

NCDOT Division 3 and the project team met with FHWA on May 31, 2017 at the NCDOT Division 3 office complex in Castle Hayne, North Carolina. At the project scoping meeting, held May 24, 2017, it was determined the project should remain a federally-funded project with FHWA as the lead agency. The purpose of the meeting held on May 31, 2017 was to meet with FHWA and determine project steps moving forward. Discussion points of the meeting are summarized below.

- FHWA noted due to the controversy of the project and the extent of the potential residential, business, and environmental justice impacts an Environmental Impact Statement (EIS) is necessary for the project.
- The traffic forecast is currently being updated and is expected to be finalized in July. The capacity analysis will follow and will determine the appropriate interchange options at Market Street. There are currently three interchange options for each alternative at Market Street. If the updated traffic analyses indicate a smaller interchange footprint, such as an at-grade facility, impacts to the surrounding environmental justice communities could decrease. Furthermore, if a smaller footprint is proposed and controversy surrounding the project is lessened, FHWA noted that a combined Final EIS and Record of Decision (ROD) could be considered. In this instance, a Preferred Alternative would be identified in the Draft EIS.
- It was noted that while an at-grade intersection at Market could potentially be an option with lower traffic volumes, elevated crossings would still be needed when crossing the CSX rail lines.
- Holding an open house public meeting was suggested at the project scoping meeting to inform the public of the project status and alternative concepts. A corridor public hearing will be held after the Draft EIS has been issued and a design public hearing will be held after the Final EIS has been issued.

MEETING SUMMARY

June 8, 2017

Page 2 of 2

- FHWA advised the project team to document all outreach and avoidance measures for environmental justice communities. The project team will need to work with the communities and FHWA to determine appropriate mitigation opportunities.
- The project is currently scheduled for right of way acquisition to begin in 2022 and construction to begin in 2025. The Draft EIS is currently scheduled to be signed in the spring of 2019 and the Final EIS in the winter of 2019/2020. Once the traffic analyses are completed the project team will revisit the schedule and determine an appropriate time to begin public involvement.

Action Items

- AECOM to update project schedule once the traffic forecast and capacity analysis have been completed.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

MEMORANDUM

To: Attendees

From: Jahmal Pullen, PE
NCDOT Rail Division

Subject: U-4434 Independence Blvd Extension
Railroad Coordination Meeting

Date: July 20, 2017

A meeting was held on July 12, 2017 at the Division 3 office in Castle Hayne to discuss the railroad interaction on the proposed project U-4434 (Independence Boulevard Extension).

Attendees:

Katie Hite, NCDOT
Michael Bass, NCDOT
David Leonard, NCDOT
Anthony Law, NCDOT
Mike Kozlosky, WMPO
Brian Gackstetter, NCDOT
Kumar Trivedi, NCDOT
Carla Schoonmaker, NCDOT
Joanna Rocco, AECOM (by phone)
Celia Foushee, AECOM (by phone)
Tony Bellamy, CSXT
Troy Creasy, CSXT
Jahmal Pullen, NCDOT

Meeting Minutes:

- Talked about project history
- Talked about project schedule

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
1556 MAIL SERVICE CENTER
RALEIGH, NC 27699-1556

Telephone: (919) 707-4100
Fax: (919) 707-4154
Customer Service: 1-877-368-4968

Website: www.ncdot.gov
www.ncbytrain.org

Location:
862 CAPITAL BLVD
RALEIGH, NC 27603

- Discussed the current and future rail traffic. Currently 2 trains per day use the track and with the new intermodal service to Charlotte, there is an opportunity in the near future for an additional 4 trains per week to be added to the line.
- Discussed a proposed project to be inputted into STI P5.0 for scoring, which will look at upgrading the rail line and implementing the Wilmington Traffic Separation Study.
- Talked about project description and interaction with the railroad
- CSX described need for a 25 foot distance from a potential second track and that the clearance was still 23'3". A link to the Public Projects Manual was going to be provided. Here is a link as well:
<https://www.csx.com/index.cfm/library/files/about-us/property/public-project-manual/>
- Talked about the at-grade crossing versus grade separated crossing of the railroad
- It was noted that Alternate 8 will need to be taken off, due to the City building a new police and fire training facility in the path of that alignment. This location is near the North crossing of the rail line. Mike was going to follow up with the City regarding design plans for the facility and if they are available, they would be sent to DOT.
- Wilmington MPO mentioned that they did look at taking Independence Boulevard under the CSX line, but the cost was high.
- Wilmington MPO asked that CSX provide written response regarding at-grade crossing of the railroad
- NCDOT will send letter, and since has sent the letter, to CSX requesting a written response regarding at-grade crossing

If there are any revisions or additional items that have not been included in the minutes please let me know and I will send out a revised summary. I can be reached at jmpullen@ncdot.gov or by phone at 919-707-4102.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

July 14, 2017

Mr. Tony C. Bellamy, PE
Director Project Management-Public Projects
500 Water St., J-301
Jacksonville, FL 32202

Dear Mr. Bellamy:

The North Carolina Department of Transportation (NCDOT) and the Wilmington Urban Area Metropolitan Planning Organization are currently in the planning phase for project U-4434. This project proposes the extension of Independence Boulevard. The project would cross the CSX ACB line in two locations. The current schedule for the project is right of way in fiscal year 2022 and a let date in fiscal year 2025. The railroad interaction on this project was discussed at a July 12th meeting held at the NCDOT Division Three office. At that meeting we had representation from the Wilmington Urban Area MPO, CSX Transportation, NCDOT Division Three, NCDOT Rail Division and AECOM.

There are several different alternatives that are being evaluated. The City and MPO have passed resolutions supporting the completion of the draft environmental impact statement, preservation of the preferred corridor, opposing the design of an elevated facility and encouraging the MPO, NCDOT and CSX to develop an at-grade option for Independence Boulevard extension. The purpose of this letter is to request feedback from CSX on the proposal to include two at-grade crossings of the CSX line in the U-4434 plans.

Sincerely,

A handwritten signature in blue ink that reads "Jahmal Pullen".

Jahmal Pullen, PE
NCDOT Rail Division
Engineering Coordination & Safety Manager

cc:

Mike Kozlosky, Wilmington MPO
Troy Creasy, CSX Transportation
Katie Hite, PE, NCDOT
Carla Schoonmaker, NCDOT
Michael Bass, NCDOT
Kumar Trivedi, PE, NCDOT
Brian Gackstetter, NCDOT

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
1556 MAIL SERVICE CENTER
RALEIGH, NC 27699-1556

Telephone: (919) 707-4100
Fax: (919) 707-4154
Customer Service: 1-877-368-4968

Website: www.ncdot.gov
www.ncbytrain.org

Location:
862 CAPITAL BLVD
RALEIGH, NC 27603

From: [Bass, Michael L](#)
To: [Rocco, Joanna](#)
Cc: [Foushee, Celia](#)
Subject: FW: U-4434 Independence Blvd Extension
Date: Wednesday, July 26, 2017 9:01:57 AM
Attachments: [image003.png](#)
[image001.png](#)
[image002.png](#)

FYI...

Michael L. Bass, Jr.
Engineering Technician Advanced
Division 3 Division Design Construct
North Carolina Department of Transportation

910 341 2000 office
910 675 0143 fax
mlbass@ncdot.gov

5501 Barbados Boulevard
Castle Hayne, NC 28429



Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

From: Pullen, Jahmal M
Sent: Tuesday, July 25, 2017 3:28 PM
To: Creasy, Troy <Troy_Creasy@csx.com>
Cc: Trivedi, Kumar A <katrivedi@ncdot.gov>; Law, Anthony W <alaw@ncdot.gov>; Leonard, David <dbleonard@ncdot.gov>; Stepney, Sandra A <sastepney@ncdot.gov>; Gackstetter, Brian E <begackstetter@ncdot.gov>; Schoonmaker, Carla M <cschoonmaker@ncdot.gov>; Bellamy, Tony <Tony_Bellamy@csx.com>; mike.kozlosky@wilmingtonnc.gov; Hite, Katie E <kehite@ncdot.gov>; Dillard, John <John_Dillard@CSX.com>; Bass, Michael L <mlbass@ncdot.gov>; Cramme, Katherine (External) <Katherine_Cramme@CSX.com>
Subject: RE: U-4434 Independence Blvd Extension

Troy –

Thank you for the CSX response.

Jahmal

Jahmal Pullen, PE
Engineering Coordination and Safety Manager
Rail Division
North Carolina Department of Transportation

919 707 4102 office
jmpullen@ncdot.gov

862 Capital Blvd.
1556 Mail Service Center
Raleigh, NC 27699-1556



Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

From: Creasy, Troy [mailto:Troy_Creasy@csx.com]
Sent: Tuesday, July 25, 2017 3:17 PM
To: Pullen, Jahmal M <jmpullen@ncdot.gov>
Cc: Trivedi, Kumar A <katrivedi@ncdot.gov>; Law, Anthony W <alaw@ncdot.gov>; Leonard, David <dbleonard@ncdot.gov>; Stepney, Sandra A <sastepney@ncdot.gov>; Gackstetter, Brian E <begackstetter@ncdot.gov>; Schoonmaker, Carla M <cschoonmaker@ncdot.gov>; Bellamy, Tony <Tony_Bellamy@csx.com>; mike.kozlosky@wilmingtonnc.gov; Hite, Katie E <kehite@ncdot.gov>; Dillard, John <John_Dillard@CSX.com>; Bass, Michael L <mlbass@ncdot.gov>; Cramme, Katherine (External) <Katherine_Cramme@CSX.com>
Subject: RE: U-4434 Independence Blvd Extension

Jahmal,

From an operational and safety standpoint, any at-grade option for the Independence Boulevard extension project is unacceptable.

Best regards,

Troy J Creasy

Project Manager II
CSX Capital & Public Projects
(O) 804-226-7718 | (F) 904-245-4412
1610 Forest Ave, Suite 120, Richmond VA 23229
[Click to view CSX's Public Projects Manual](#)

From: Pullen, Jahmal M [<mailto:jmpullen@ncdot.gov>]
Sent: Friday, July 14, 2017 4:46 PM

To: Bellamy, Tony <Tony_Bellamy@csx.com>; Creasy, Troy <Troy_Creasy@csx.com>
Cc: Trivedi, Kumar A <katrivedi@ncdot.gov>; Law, Anthony W <alaw@ncdot.gov>; Leonard, David <dbleonard@ncdot.gov>; Stepney, Sandra A <sastepney@ncdot.gov>; Gackstetter, Brian E <begackstetter@ncdot.gov>; Schoonmaker, Carla M <cschoonmaker@ncdot.gov>; mike.kozlosky@wilmingtonnc.gov; Hite, Katie E <kehite@ncdot.gov>; Bass, Michael L <mlbass@ncdot.gov>
Subject: U-4434 Independence Blvd Extension

Tony, Troy –

We wanted to follow up with you from our Wednesday meeting regarding the U-4434. We have a letter attached requesting your feedback. Thanks again for meeting with us.

Jahmal

Jahmal Pullen, PE
Engineering Coordination and Safety Manager
Rail Division
North Carolina Department of Transportation

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jmpullen@ncdot.gov

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MEETING SUMMARY



To: Project File

From: Celia Foushee
AECOM

Date: February 14, 2018

RE: **NCDOT Status Update Meeting**
NCDOT STIP Project U-4434 (Independence Boulevard Extension)

Meeting Attendees:

Chad Kimes – NCDOT Division 3	Andrew Bell – AECOM
Krista Kimmel – NCDOT Division 3	Ed Edens – AECOM
David Leonard – NCDOT Division 3	Celia Foushee – AECOM
Mason Herndon – NCDOT Division 3	Joanna Rocco – AECOM

NCDOT Division 3 and the project team met on February 6, 2018 at the NCDOT Division 3 office complex in Castle Hayne, North Carolina to discuss the project status and design changes to the Independence Boulevard Extension project. Discussion points of the meeting are summarized below.

- Schedule
 - Agency check-in meetings were removed from the schedule.
 - The Capacity Analysis was put on hold to analyze conceptual designs to elevate the facility. A draft is anticipated to be submitted to NCDOT Division 3 by the end of February.
 - The Draft Environmental Impact Statement (EIS) is scheduled to be signed in summer 2019, the Final EIS is scheduled for 2021, the record of decision is schedule to be completed in summer/fall 2021, and right-of-way acquisition is schedule for 2022.
 - It was noted HDR could begin final designs before the record of decision is finalized.
 - The project team will begin updating technical studies once designs are finalized. The Natural Resources Technical Report was completed in 2012 and will likely need an addendum to identify any species that have been added to the threatened/endangered list. NCDOT will verify with the USACE if the wetland delineation is still valid.
 - AECOM will send the project schedule to Krista and Tim Banta for review.
- Design Revisions
 - AECOM developed five conceptual designs to reduce impacts and costs of the project. These included bridging the proposed roadway from the Market Street interchange to Hurst Street (Option 5). NCDOT noted this is their preferred option for preparing additional design refinements and cost estimates.
 - NCDOT provided a draft typical section to incorporate into the Option 5 design to reduce right-of-way impacts and costs. AECOM will confirm the typical section meets design standards and can be incorporated as proposed.

MEETING SUMMARY

February 14, 2018

Page 2 of 2

- The Wilmington City Council is concerned about the design speed of the project (60 mph – posted at 55 mph). Immediately following the meeting, NCDOT presented to Mike Kozlosky (WMPO) the option of lowering the design speed from 60 mph to 55 mph, allowing the posted speed to be either 50 mph or 45 mph. Mike agreed with this change.
- It was suggested a single point urban interchange (SPUI) at Market Street could further reduce impacts to the surrounding communities. AECOM will complete a comparison of the current tight urban diamond interchange (TUDI) and SPUI at this location.
 - *Follow-up: A SPUI configuration has been analyzed and conceptually drawn, and has merit in being included in the alternatives analysis.*
- The following three designs will be presented at the next WMPO TAC meeting (February 28, 2018):
 - Alternative 7 TUDI (Option 2) with original typical and original right-of-way width.
 - Alternative 7 TUDI (Option 5 with Market Street to Hurst Street bridge) with revised narrow typical section and narrow right-of-way.
 - Alternative 7 SPUI (Option 5 with Market Street to Hurst Street bridge) with revised narrow typical section and narrow right-of-way.
 - Revised construction and right-of-way cost estimates for the three options above.
 - Impact comparison between the three options above.
- AECOM will coordinate with FHWA to discuss the revised design options, potentially presenting a preferred alternative in the Draft EIS and completing a combined Final EIS/Record of Decision environmental document, and eliminating the Market Street Quadrant ramp configurations due to increased impacts to the surrounding community.

Action Items

- NCDOT will verify with the USACE if the 2012 wetland delineation is still valid.
- AECOM will send the project schedule to Krista and Tim Banta for review.
- AECOM will confirm the draft typical section provided by NCDOT meets design standards and can be incorporated as proposed.
- AECOM will revise the design speed of the proposed Independence Boulevard Extension from 60 mph to 55 mph.
- AECOM will complete a traffic and geometric comparison of the current tight urban diamond interchange (TUDI) and SPUI at the Market Street interchange.
- AECOM and NCDOT will present the following three designs at the next WMPO TAC meeting (February 28, 2018):
 - Alternative 7 TUDI (Option 2) with original typical and original right-of-way width.
 - Alternative 7 TUDI (Option 5 with Market Street to Hurst Street bridge) with revised narrow typical section and narrow right-of-way.
 - Alternative 7 SPUI (Option 5 with Market Street to Hurst Street bridge) with revised narrow typical section and narrow right-of-way.
 - Revised construction and right-of-way cost estimates for the three options above.
 - Impact comparison between the three options above.
- AECOM will coordinate with FHWA to discuss the revised design options, potentially presenting a preferred alternative in the Draft EIS and completing a combined Final EIS/Record of Decision environmental document, and eliminating the Market Street Quadrant ramp configurations due to increased impacts to the surrounding community.

MEETING SUMMARY



To: Project File

From: Celia Miars
AECOM

Date: June 19, 2018

RE: **NCDOT Status Update Meeting**
NCDOT STIP Project U-4434 (Independence Boulevard Extension)

Meeting Attendees:

Chad Kimes – NCDOT Division 3
Krista Kimmel – NCDOT Division 3
David Leonard – NCDOT Division 3
Mason Herndon – NCDOT Division 3
Katie Hite – NCDOT Division 3

Kevin Bowen – NCDOT Division 3
Mike Kozlosky – Wilmington MPO
Ed Edens – AECOM
Celia Miars – AECOM
Joanna Rocco – AECOM

NCDOT Division 3, the Wilmington MPO, and AECOM held a conference call on June 11, 2018 to discuss a preferred alternative for the Independence Boulevard Extension project and the next steps for public involvement. Previously, NCDOT and AECOM developed concepts for the proposed project, which included three alternatives (Alternatives 2, 7, and 8), each with three interchange options at Market Street (Quad AC, Quad BC, and a Tight Urban Diamond Interchange (TUDI)). Additional discussions with NCDOT and the WMPO led to dropping Alternative 8 due to the potential impacts to the newly developed City of Wilmington firing range facility. Alternatives 2 and 7 were carried forward with design revisions to the mainline, which included a bridging option to lessen the impact to the surrounding communities. Additional interchange options were also proposed: Option 5 (TUDI) and Option 6 (single point urban interchange (SPUI)). Quad AC and Quad BC were eliminated from further study due to relocations. A preliminary impact matrix was created comparing Alternatives 2 and 7 with the original design, Option 5 (TUDI), and Option 6 (SPUI) (six alternatives total).

NCDOT held an internal meeting in April to discuss the preliminary impacts matrix and decided to eliminate Alternative 2 due to the number of relocations. It was also decided to wait until the Traffic Capacity Analysis was complete to determine which option to move forward with, the TUDI or the SPUI.

Discussion points from this meeting are summarized below.

- The TUDI and the SPUI operate very similar, however, the SPUI operates slightly better.
- The SPUI has less business and residential relocations with a tighter design.
- Pedestrian accommodations with the SPUI could be complicated. AECOM should develop conceptual ideas regarding single timing for pedestrian movements.

MEETING SUMMARY

June 19, 2018

Page 2 of 2

- The WMPO noted pedestrian access would need to be accommodated along the roadway.
- It was decided NCDOT and AECOM would present both options to the public and local officials prior to selecting a preferred alternative. The Draft Environmental Impact Statement (DEIS) will analyze Alternative 7, Options 5 and 6 as detailed study alternatives and provide discussion of the previous conceptual alternatives and why they were eliminated from further study.
- AECOM will coordinate with Ron Lucas, FHWA, to verify the proposed methodology for the public meeting and the DEIS.

The meeting concluded at 11:45 am.

Action Items

- AECOM will provide further traffic analyses on the pedestrian movements for the TUDI and SPUI options.
- AECOM will send examples of a SPUI with bicycle and pedestrian accommodations for use in preparing a concept and traffic analyses for U-4434.
- AECOM will coordinate with Ron Lucas to verify the proposed methodology for the public meeting and the DEIS. *Update: AECOM and NCDOT held a conference call with FHWA on June 12, 2018. FHWA concurred on the proposed next steps to present Alternative 7, Options 5 and 6 to the local officials and to the public. AECOM will coordinate with NCDOT to determine a date for the public meeting.*

MEETING SUMMARY



To: Project File

From: Celia Miars
AECOM

Date: January 15, 2019

RE: **Greenway Rail Crossings Meeting**
NCDOT STIP Project U-4434 (Independence Boulevard Extension)

Meeting Attendees:

Troy Creasy – CSX	Ed Edens – AECOM*
Brian Gackstetter – NCDOT Rail Division	Tom Hepler – AECOM*
Jahmal Pullen – NCDOT Rail Division	Celia Miars – AECOM
Krista Kimmel – NCDOT Division 3	Joanna Rocco – AECOM *
Katie Hite – NCDOT Division 3	Dan Scheel – AECOM
Mike Kozlosky – Wilmington MPO	Susan Westberry – AECOM
Chase Anderson – City of Wilmington	

*attended meeting via phone

The project team met with NCDOT Division 3, NCDOT Rail Division, CSX, and the Wilmington MPO on December 19, 2018 to discuss proposed designs for the Independence Boulevard Extension project at existing rail crossings. Krista Kimmel began the meeting by providing details about the project status and the proposed designs. The Independence Boulevard Extension project begins at Randall Parkway and extends on new location to Martin Luther King Jr. Parkway. The Wilmington MPO (WMPO) has requested a multi-use path to the east of the proposed facility. Currently, the functional designs for the proposed facility include bridges over both rail crossings.

Mike Kozlosky noted the area is low-income and minority with low car ownership. The WMPO adopted a Greenway Plan in 2013 which includes the 'Independence Boulevard Trail', described as connecting McCrary Park to Maides Park and its proposed connector trail to Downtown. This trail would provide additional access to other greenways (including the Cross City Trail), park facilities, and transit routes within Wilmington. It was noted the Division and WMPO's preferred alignment for the proposed multi-use facility would include modifications to the existing at-grade rail crossings.

CSX noted that new at-grade rail crossings would not be approved by CSX and existing at-grade crossings should be utilized where possible. Modifications to existing at-grade crossings are permissible.

The southern crossing, referred to as "Covil Crossing" would modify the existing at-grade vehicular crossing and unprotected, unpaved pedestrian path with a singular pedestrian crossing in the form of a "Z" which

MEETING SUMMARY

January 15, 2019

Page 2 of 2

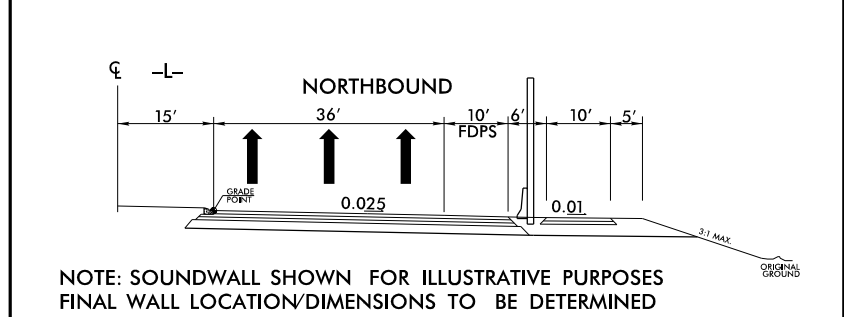
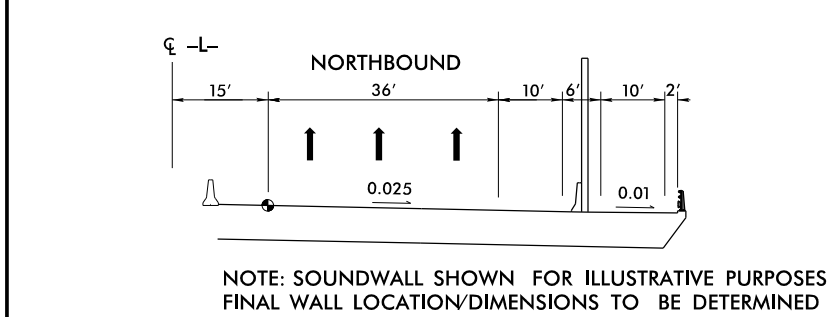
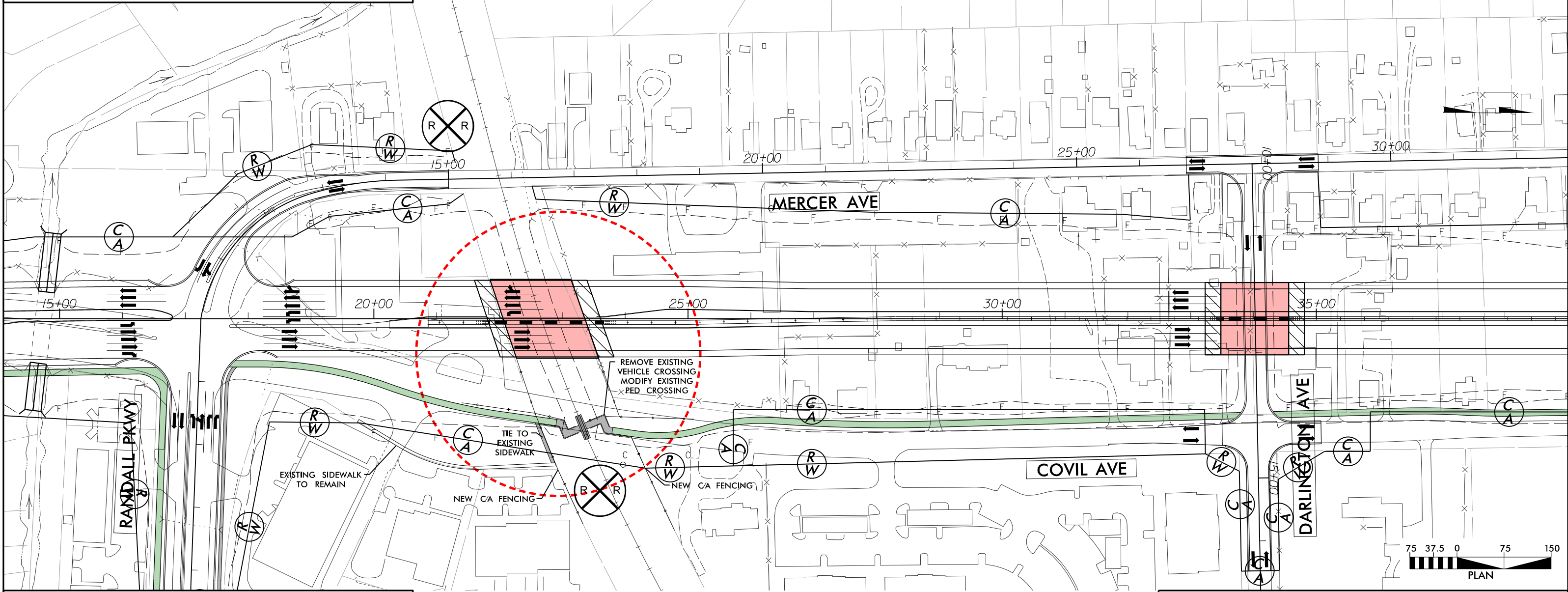
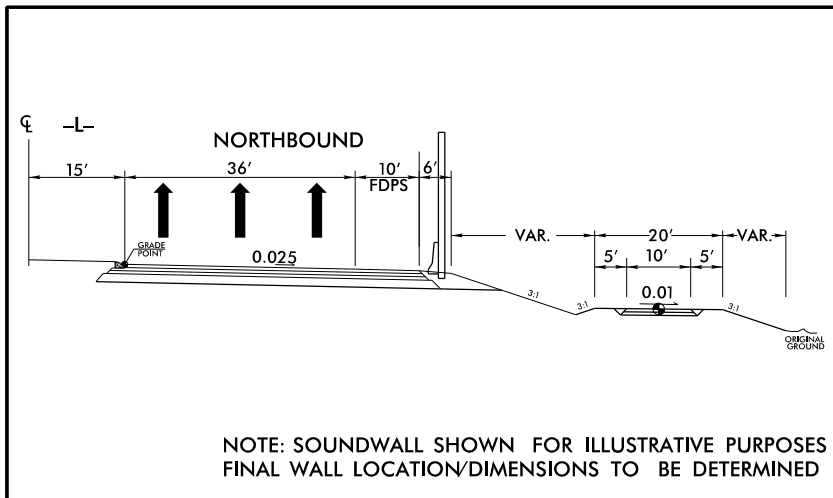
offers added safety to the multi-use path users by requiring them to slow or stop before crossing. The current functional designs include a "Z" pedestrian crossing perpendicular to the railway. It was noted the "Z" crossing is preferred and much safer for pedestrians. CSX and NCDOT Rail Division noted that a sidewalk and fencing should be provided to funnel traffic to the greenway facility in order to discourage movement behind the adjacent buildings and along the rail corridor.

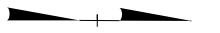
The northern crossing, referred to as "Princess Place Crossing" would modify the existing crossing for pedestrian use for the crossing on the northern side of Princess Place Drive. A "Z" crossing is proposed which would cross the railroad tracks at 90 degrees and continue the multi-use path parallel to the proposed roadway. The existing sidewalk crossing on the north side of Princess Place would be removed and a connecting sidewalk would be constructed along the north side of the railroad right-of-way to tie to the multi-use path to Evans Street. Fencing along the rail ROW would be provided to funnel pedestrian traffic along the sidewalk and to the greenway. The existing sidewalk on the south side of Princess Place Drive would remain in place.

There was discussion regarding the 5% cost-share that is provided to NCDOT by CSX when NCDOT eliminates at-grade crossings. The 5% is federally mandated and applies only if at-grade facilities, with flashers, are eliminated. Division 3 noted that the 5% has not been factored into any existing cost estimates. Since the 5% has not been included, it was decided to forgo the 5% cost-share and proceed with modifying the existing at-grade crossing to pedestrian at-grade crossings.

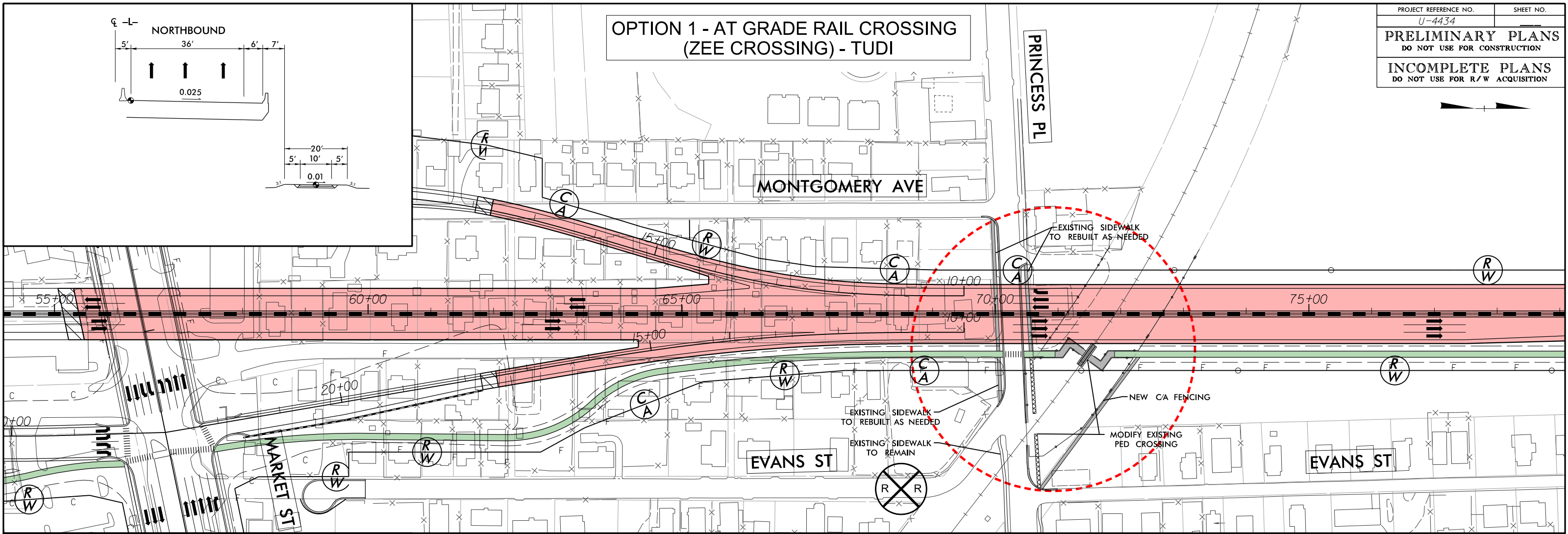
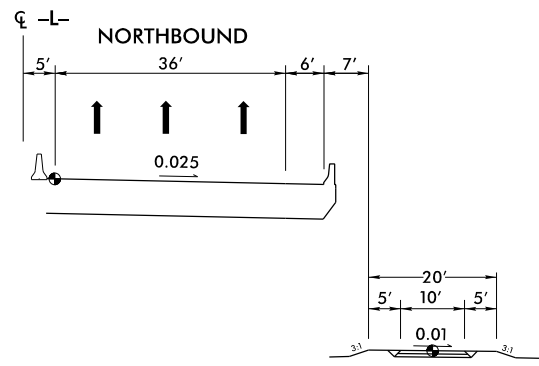
AECOM will revise the functional designs to include modifications discussed during the meeting and described above. The designs will be submitted to CSX for review feedback. The project team will hold off on coordinating with the public until CSX has provided their feedback on the crossing modifications.

OPTION 1 - AT GRADE RAIL CROSSING (ZEE CROSSING)

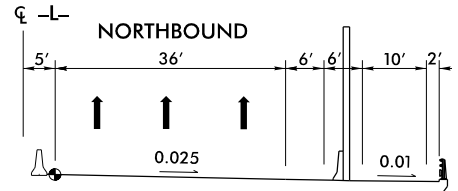




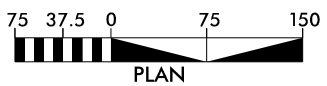
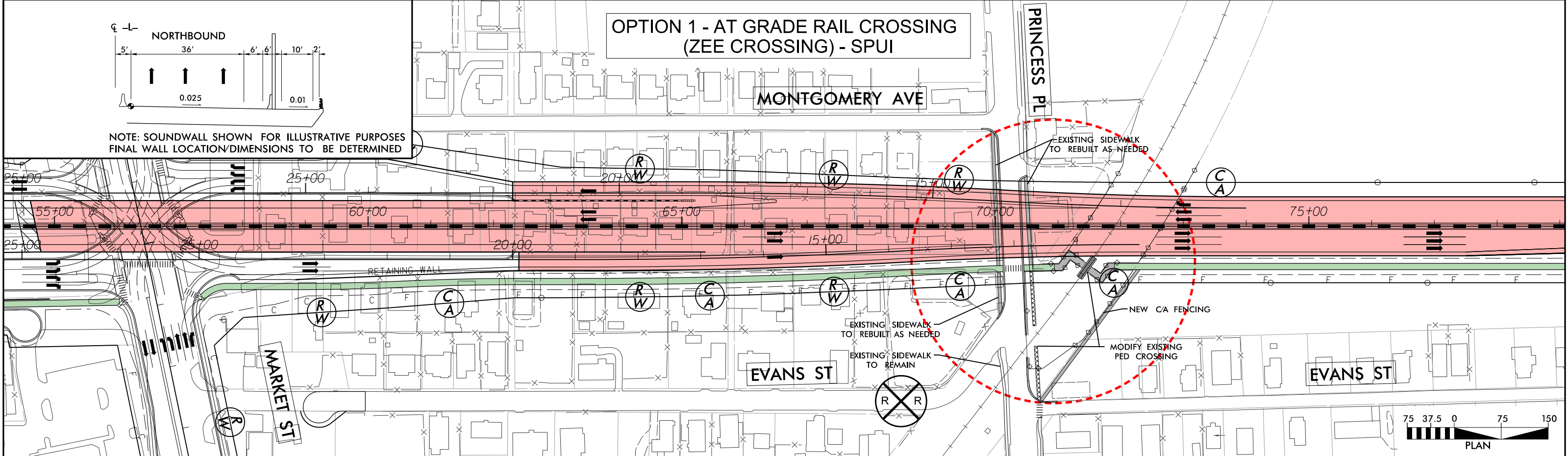
**OPTION 1 - AT GRADE RAIL CROSSING
(ZEE CROSSING) - TUDI**



**OPTION 1 - AT GRADE RAIL CROSSING
(ZEE CROSSING) - SPUI**



NOTE: SOUNDWALL SHOWN FOR ILLUSTRATIVE PURPOSES
FINAL WALL LOCATION/DIMENSIONS TO BE DETERMINED



To:
Krista Kimmel, PE
NCDOT Div. 3

Project name:
U-4434 Independence Boulevard

Project ref:

CC:
Mason Herndon, NCDOT Div. 3
Jamille Robbins, NCDOT Central

From:
Susan Westberry

Date:
April 15, 2020

Memo

Subject: FHWA Review Comments on DEIS and Need for Enhanced EJ Outreach

On April 15, AECOM held a teleconference call with Felix Davila, Clarence Coleman, and Lynise DeVance of the Federal Highway Administration (FHWA) to discuss their comments on the Draft Environmental Impact Statement (DEIS) for the Independence Boulevard Extension project. Krista Kimmel and Mason Herndon from NCDOT Division 3 were also in attendance.

The group discussed outreach efforts for the project to date, including recent efforts ahead of the July 2019 public meeting that included targeted fliers and door hangers in low income and minority portions of the study area.

FHWA suggested that some of the following measures be taken to enhance outreach and identify mitigation:

- ✓ A comprehensive and thorough Public Involvement Plan must be developed for the project
- ✓ Reaching out to leaders of the community, or local pastors (noted Hispanic church in study area)
- ✓ Plan meetings with church congregations
- ✓ Plan a meeting with Wilmington Housing Authority
- ✓ Need for a more detailed relocation plan that includes minority and low income aspects of project relocations
- ✓ Acknowledge the affordable housing shortage in Wilmington – what happens after the 3.5 years of rental assistance?
- ✓ Develop mitigation strategies with the community and identify them in the DEIS

FHWA offered to provide examples of some mitigation strategies identified for other projects. Housing relocation is a major concern for this project.

The NCDOT team explained some mitigative measures that have already been incorporated into the project – including the multiuse path, added connectivity, and pedestrian crossings.

Meeting name

Independence Boulevard Extension – Project Restart Meeting

Meeting date

March 15, 2021

Location

Microsoft Teams

Project

Independence Boulevard Extension
STIP U-4434

Attendees

Krista Kimmel – NCDOT Division 3
David Leonard – NCDOT Division 3
Mason Herndon – NCDOT Division 3
Eric Ray – NCDOT Division 3
Lonny Sleeper – NCDOT Division 3
Monica Duval – NCDOT Division 3
Ben Hughes – NCDOT Division 3
Trevor Carroll – NCDOT Division 3
Jon Roan – NCDOT Division 3

Jessie Leonard – NCDOT Division 3
Alex Stewart – NCDOT Division 3
Jason Rivenbark – NCDOT Division 3
Mike Kozlosky – WMPO
Susan Westberry – AECOM
Celia Miars – AECOM
Ed Edens – AECOM

The Independence Boulevard Extension Project (STIP U-4434) was reinitiated on March 3, 2021. NCDOT Division 3, the Wilmington MPO, and AECOM held a virtual meeting on March 15, 2021 to “restart” the project and provide a status update on various tasks remaining. Discussion points from this meeting are summarized below:

- Right of way is now scheduled for 2024 and construction in 2028.
- Project Status for tasks completed prior to May 2020 include:
 - Several technical memorandums were updated in 2018 and 2019 for the Draft Environmental Impact Statement (DEIS). These include traffic forecasts and traffic analyses, natural resources, community resources, cultural resources, noise and air analyses, and utility estimates.
 - Preliminary designs were submitted in February 2020 and comments have not been received.
 - Prior to the Project being put on hold, the DEIS had undergone reviews by the Division and Central offices as well as FHWA. Comments were received from FHWA in April 2020.
- Remaining project tasks that have been scoped include:
 - Task Order 19 includes providing updating quantities for estimates

- Task Order 15 includes preparation for the Public Hearing and selecting a Preferred Alternative
- Task Orders 12, 15, and 19 include efforts for publication of the DEIS.
- Remaining project tasks that have not been scoped include:
 - Completing enhanced Environmental Justice (EJ) outreach/analysis per comments received from FHWA
 - Preparing a new relocation report
 - Updating threatened and endangered species habitat assessments and surveys for plant species and black rail
 - Completing DEIS updates based on the time passed between technical studies completed prior to May 2020 and inclusion of enhanced EJ outreach and mitigation determinations
 - FHWA's review of the enhanced EJ outreach/analysis
 - Transferring files into ATLAS.
- Other general items that were discussed include:
 - AECOM will populate and maintain ATLAS.
 - AECOM will provide quarterly monthly expense projects
 - AECOM will update the project schedule and monthly projections.
 - WMPO noted the current aerials shown on the preliminary engineering plans do not show the City of Wilmington's new shooting range. AECOM noted the shooting range was taken into consideration during development of designs and is not anticipated to be impacted.

The meeting concluded at 9:30 am.

This is a summary of the meeting; however, if an error is found or item is missing in these meeting notes please contact Krista Kimmel, khkimmel@ncdot.gov, or Susan Westberry, susan.westberry@aecom.com, with updated information.