NORTH SPLIT
UPGRADES
DRIVING PROGRESS

Environmental Justice Working Group Meeting #4

April 23, 2020

Welcome/Meeting Agenda

- Welcome & Introductions
- Public Involvement
- Project Background
- Public Survey
- Project Update
  - Noise Barrier Recommendations
  - Section 106 Update
  - Traffic Impacts of Construction
  - Next Steps
  - Aesthetic Design Guidelines
- Discussion and Questions
- Adjourn

North Split Project Upcoming Meetings

- Virtual Public Open House April 28, 2 - 4 pm
- Virtual Public Open House April 30, 6 - 8 pm
- https://northsplit.com/virtual-open-house/

- NEPA Public Hearing Summer (Date TBD)

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North Split NEPA Public Hearing – Request for Input

- EA will be published for public review and comment
- Possible virtual public hearing
- Ensure everyone has a voice and protect public health
- Request for input from EJ Working Group:
  - Are there methods to supplement a virtual public hearing while protecting health?
    - Office hours with limited number of people
    - Telephone numbers to answer questions
    - In-person meeting in large room with limited number of people

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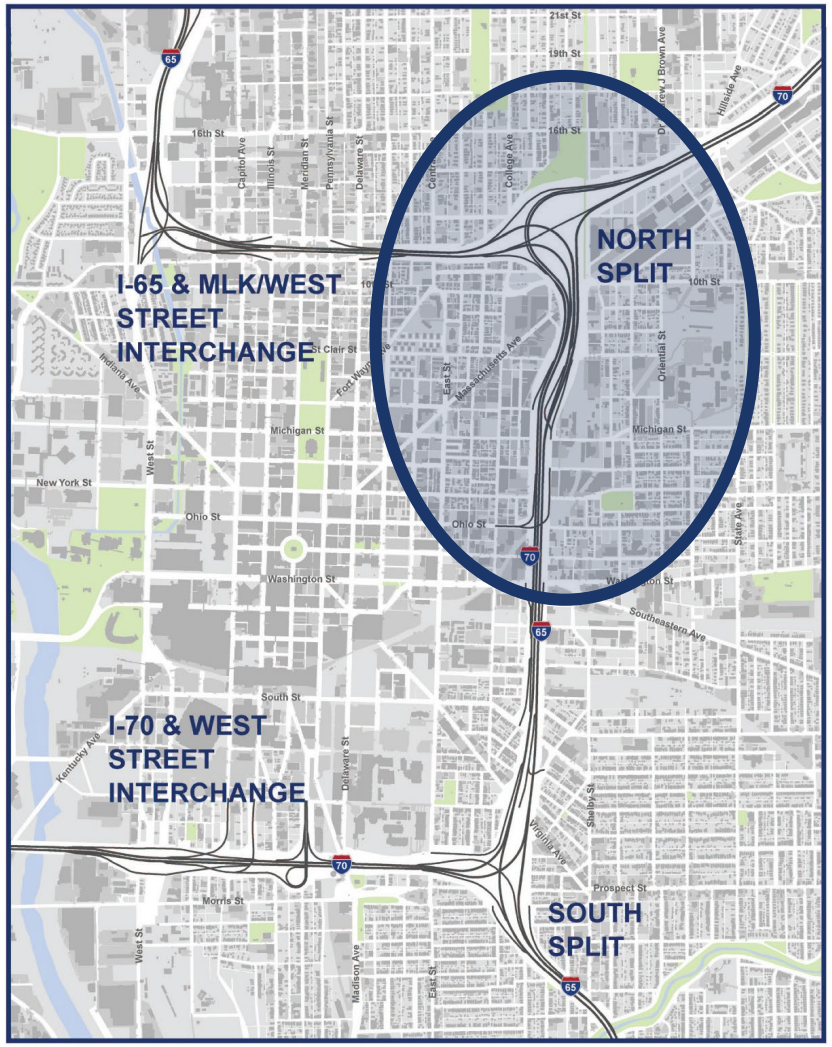
Project Background

North Split Project

- Where I-65 and I-70 meet at northeast corner of downtown Indianapolis inner loop
- Second-busiest interchange in Indiana
  - 214,000 vehicles per day
- Constructed in 1960s and 1970s – pavement and bridges need replaced
- Safety concerns – over 1,600 crashes from 2012 to 2016
- Originally designed for a 4th interstate leg to the northeast



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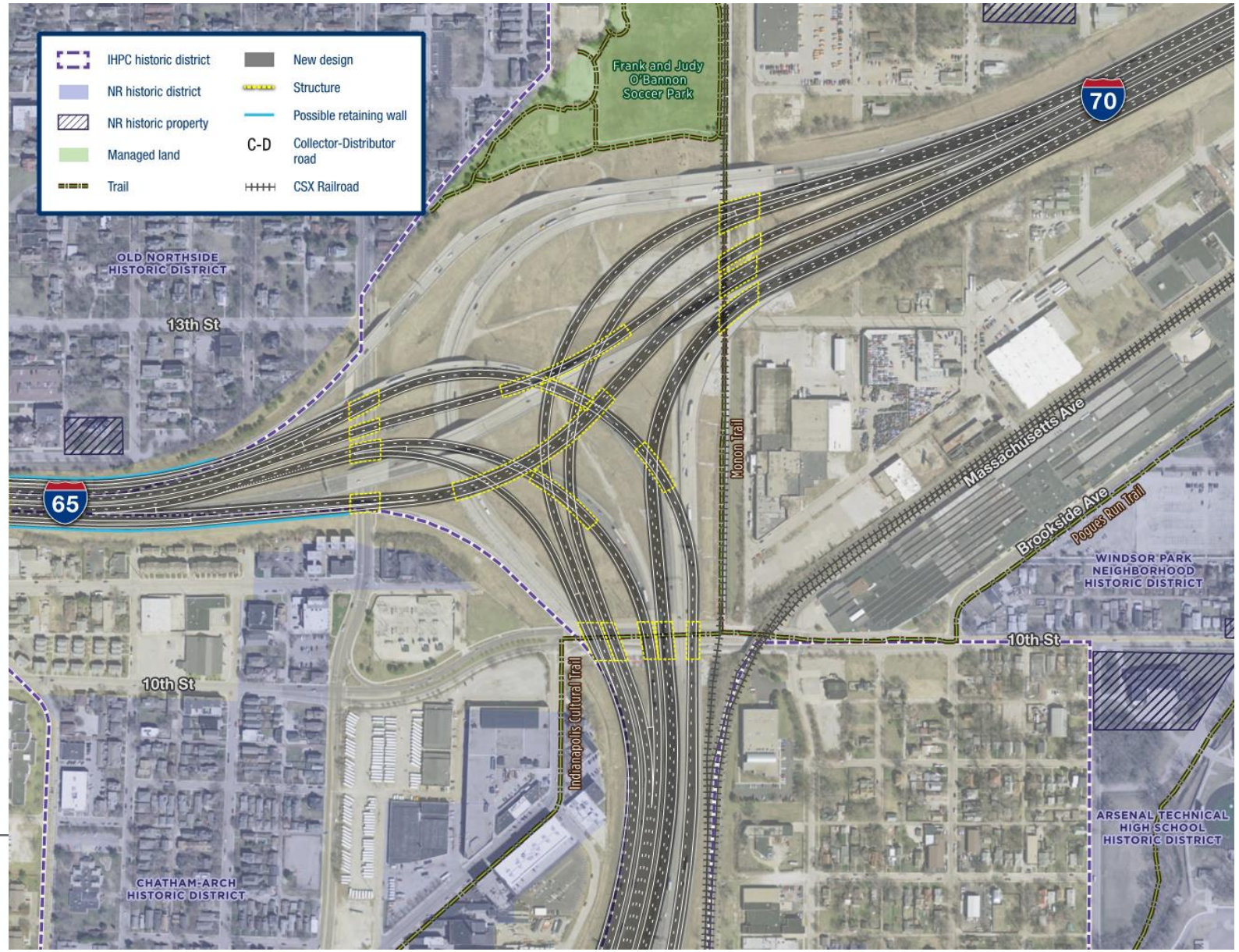
North Split Project

- New interchange is smaller and more compact
- New pavement and bridges
- Corrects the biggest safety problems
- Removes the worst bottlenecks
- Does not add through lanes



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Environmental Assessment

- Analyzes impacts to both human and natural environment
- Key North Split focus areas:
  - Highway Noise
  - Environmental Justice/Public Survey
  - Historic Properties (Section 106)
  - Traffic Impacts of Construction
- Extensive Public Involvement Process
- EA Published in Summer 2020
- NEPA determination in Fall 2020

Project Status

COMPLETE

- Project kickoff
- System-Level Analysis
- Alternative screening report
- Alternative refinement
- Highway noise studies
- Public survey
- Aesthetic Design Guidelines

ACTIVE

- Historic properties (Section 106)
- Environmental Assessment (NEPA)
- Mobility Management Plan
- Design-build procurement
- Context Sensitive Solutions (CSS)
- Public involvement

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Environmental Justice/ Public Survey

Public Survey - Content

Conducted online survey to:

- Gain better understanding of project impacts
- Help identify potential disproportionately high and adverse effects on minority and low-income communities

Promoted via:

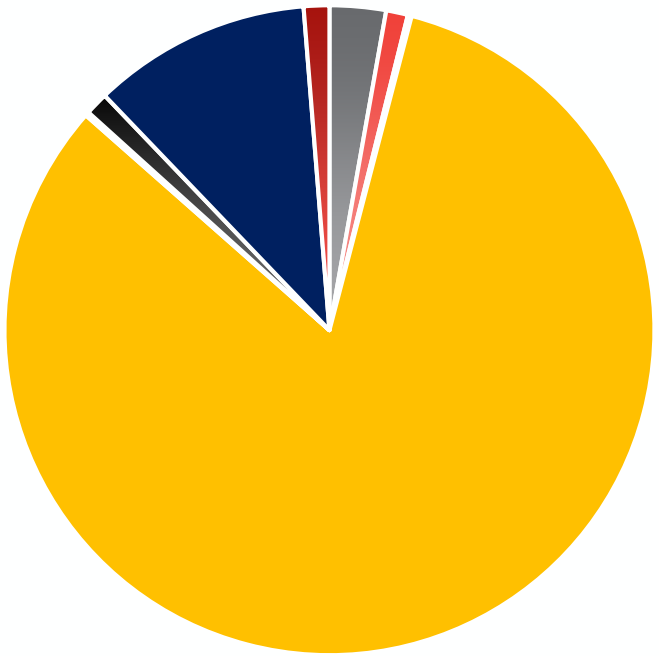
- 43,000+ postcards mailed to residents
- Project email, website, newsletters, & social media
- Fliers to IPS students and in grocery stores
- Hard copies in libraries, community centers and neighborhood meetings
- Booth at the Transit Center and ads on IndyGo buses

Public Survey - Demographics

1,623 total responses

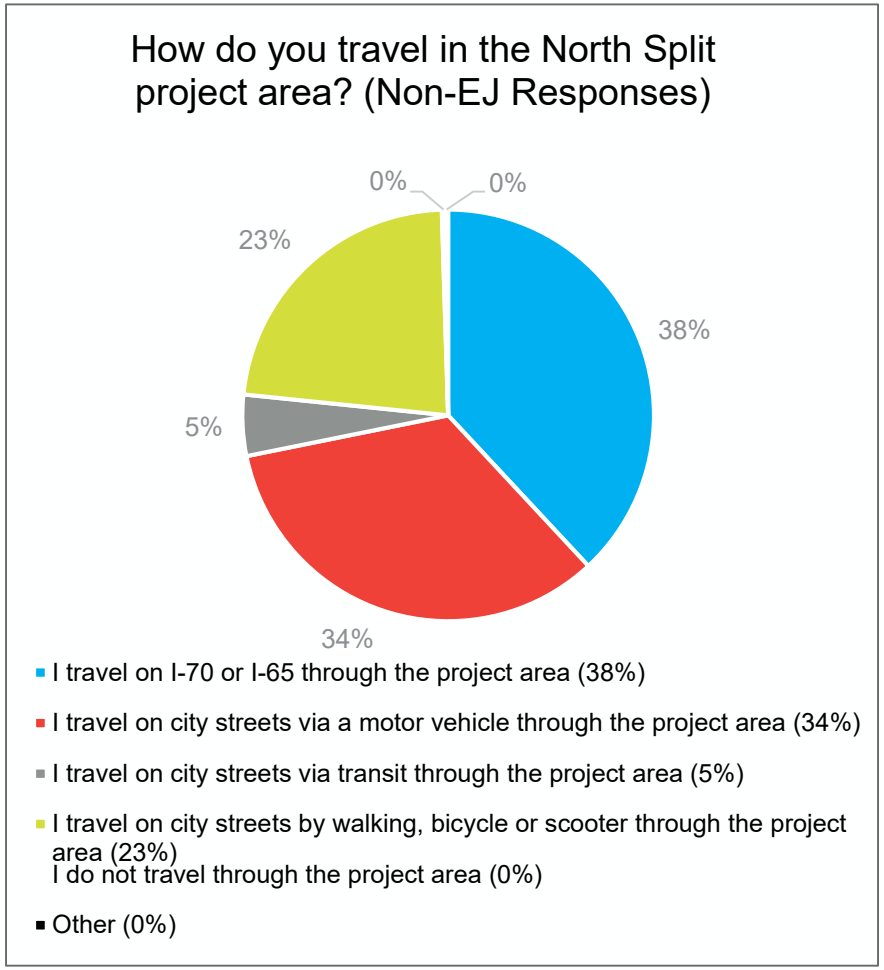
- 80 percent live in the EJ analysis area
- 1,575 surveys were essentially complete
- 5% self-identified as a minority
- 2% self-identified as low-income

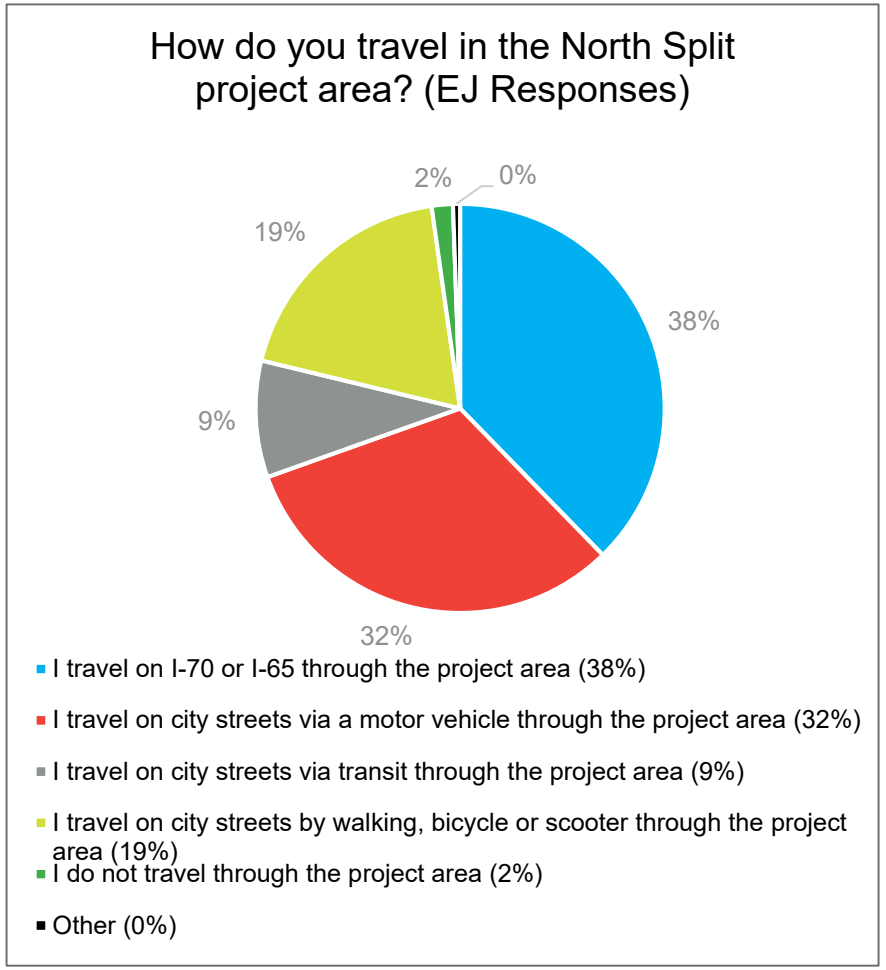
Race



Public Survey - Results

- Documented in an Environmental Justice Technical Memorandum in EA Appendix





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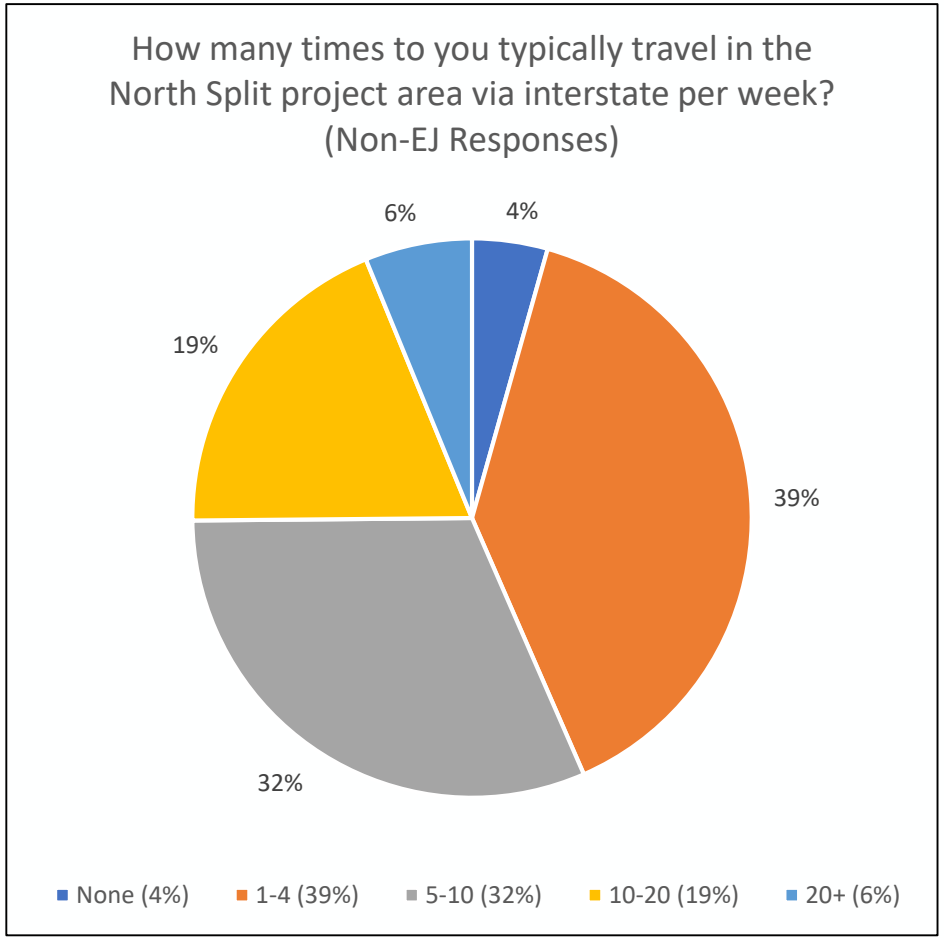
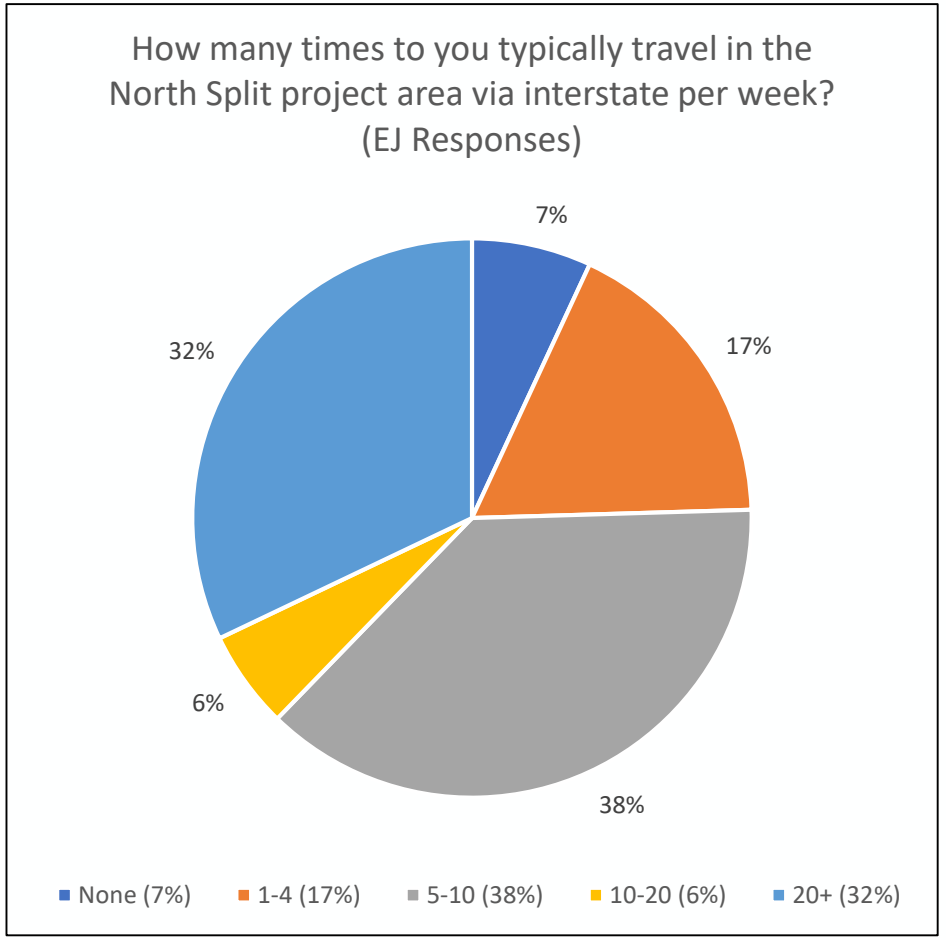
Public Survey - Results

- EJ community members travel on I-65 and I-70 more frequently than non-EJ





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Public Survey - Responses

Responses from EJ communities paralleled those of the non-EJ community

EJ community members travel on I-65 and I-70 more frequently than non-EJ

Other notable trends in responses:

- The public receives project updates
- Clear and proactive communication is desired
- Travel via personal automobiles, carpools or ridesharing services
- Most people travel on I-70, I-65, and local streets
- Most support the project
- Most agree it will improve vehicular and pedestrian safety

Public Survey – Effects

No disproportionate adverse effects for displacement, air quality, land use, economic condition, mobility and access, public services and facilities, and safety.

Category	Finding	Mitigation Measures
Community Cohesion	Minor adverse effects due to potential retaining walls and noise barriers	CSS design treatments being implemented
Noise and Vibration	• Noise impacts predicted at 201 receptors with elevated concentrations of low-income and minority populations • No adverse vibration effects	• Noise barriers recommended • INDOT solicited viewpoints to determine if noise barriers are desired
Visual	Minor adverse effects due to changes in roadway height and location, steeper side slopes and/or retaining walls, and removal of existing vegetation	Aesthetic Design Guidelines outline design treatments, landscaping, fencing, etc.
Temporary Construction	Temporary adverse effects to air quality, noise, vibration, publish services, transit, and traffic	• INDOT's Standard Specifications and applicable air quality regulations • Vibration Monitoring and Control Plan • Mobility Management Plan • Emergency Response Plan

Public Survey - Effects

Category	Finding	Avoidance, Minimization or Mitigation Measures
Land Use	No adverse effects	None
Economic Condition	No adverse effects	None
Mobility and Access	• Minor effects to vehicular access • Positive effects to traffic flow • Positive effects to pedestrian and bicycle traffic	None
Public Services and Facilities	No adverse effects	None
Safety	Positive effects due to addressing the four top crash sites	None

Pause for Questions

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Highway Noise

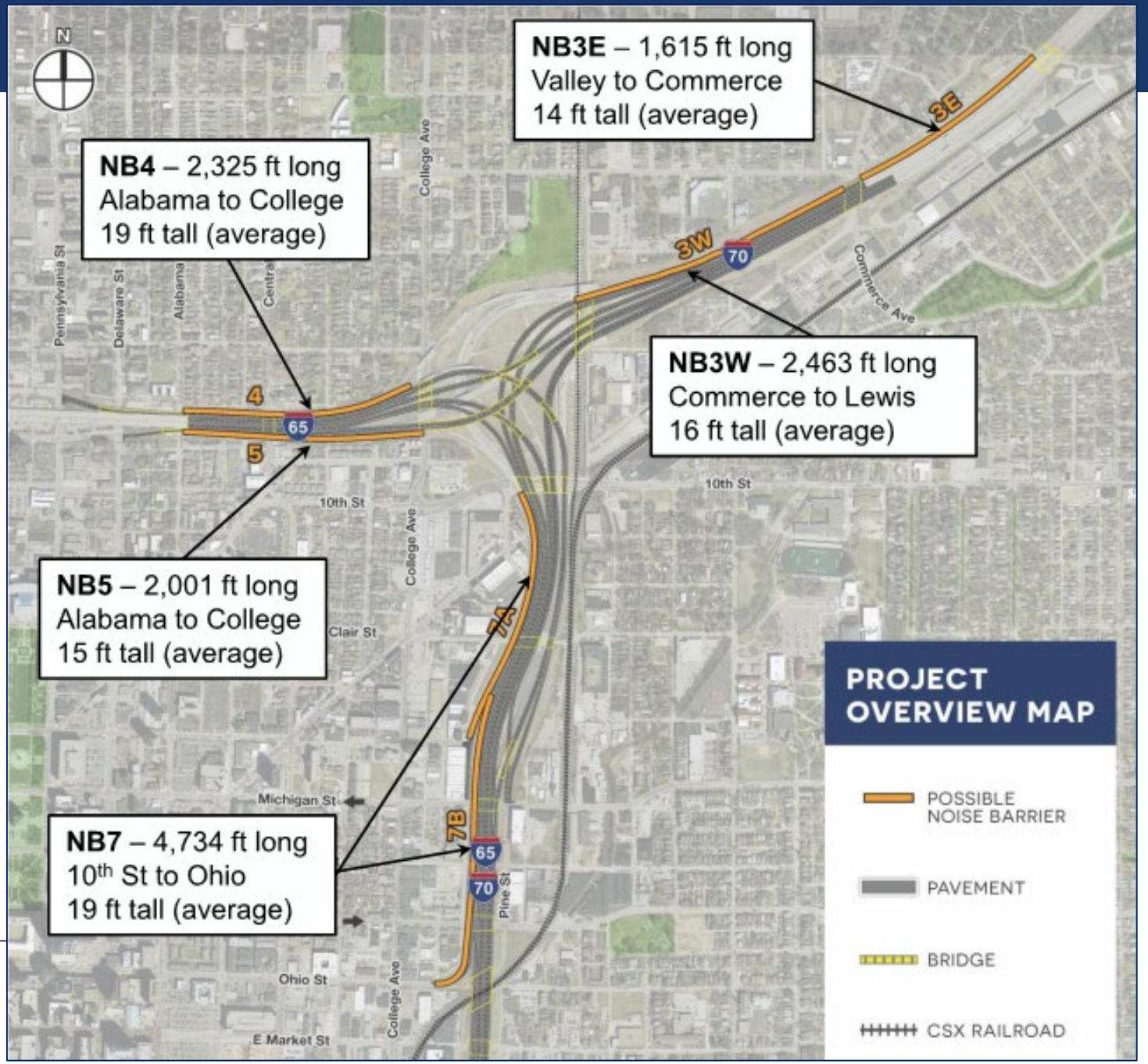
Noise Barriers

- Considered where there are **noise impacts** (66 dB(A) for residences)
- Barriers can reduce noise levels by 5 to 10 dB(A)
- Location and height determined by the Traffic Noise Model

Noise Barriers

Predicted noise exceeds current criteria (66 dB(A) for residences)

- Five potential locations
- Each location feasible
- Possibly reasonable
- Subject to input by benefited receptors



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Noise Barriers

- Recommended*
  - NB3E, NB3W
  - Noise surveys show support
- Not Recommended
  - NB4, NB5, NB7
  - Noise survey results mixed
  - Section 106 Adverse Effect

*Re-evaluation of the noise analysis to occur during final design to determine whether conditions have changed.

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Noise Reducing Technology

- Continuous Reinforced Concrete (CRC) Pavement
  - Jointless pavement
  - Double the design life
- “Next Generation” Pavement Grooving
  - Longitudinal grooves, rather than transverse
  - Reduces pavement noise 3 to 5 decibels
- Jointless Concrete Bridges
  - More durable, quieter structures than existing
  - Integral / Semi-Integral ends

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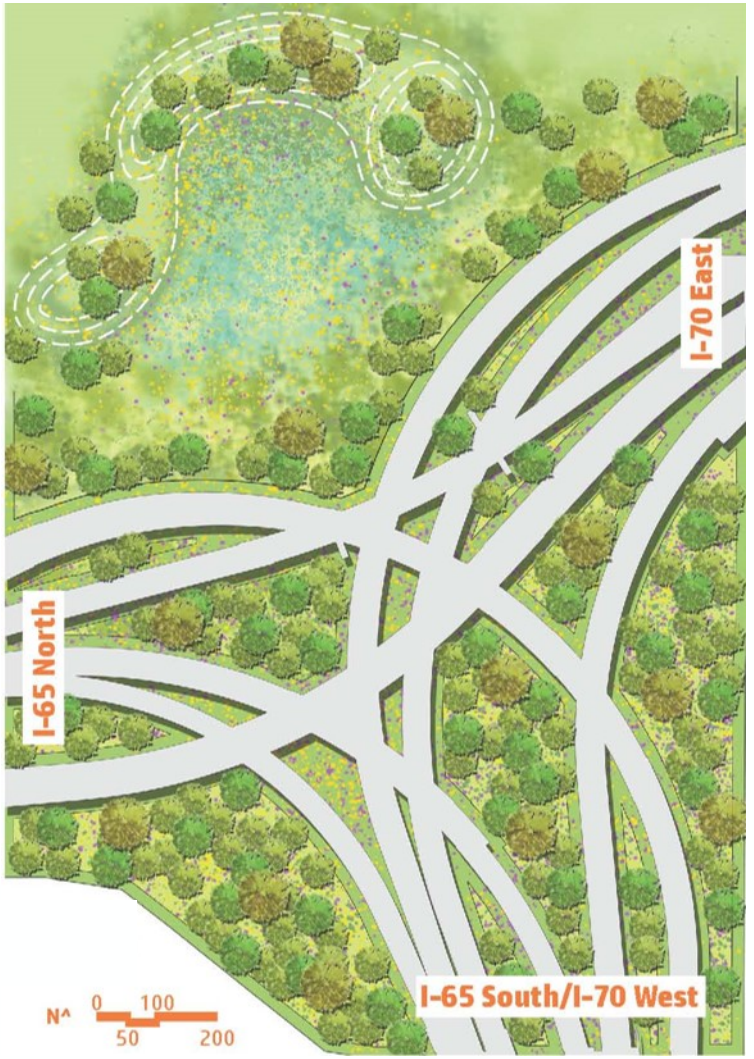
Historic Properties (Section 106)

Historic Properties Impacts

- Section 106 of the National Historic Preservation Act of 1966 (NHPA) protects historic districts and properties
- Adverse effect identified for 3 historic districts/ properties:
  - Old Northside Historic District/Morris Butler House
  - St. Joseph Neighborhood Historic District
  - Chatham-Arch Historic District
- Mitigation commitments are compensation for the diminishment of a historic property

Proposed Mitigation Commitments

- Project elements, including trees and vegetation, to comply with North Split Aesthetic Design Guidelines
- “Do Not Disturb” areas for existing trees
  - North of I-65, College to Alabama – outside of 15-foot construction zone
  - Existing tree stands south of I-65 from College to Delaware
  - West of I-65/I-70 between Michigan and New York
- Consulting Party review of draft landscape and side slope plan prior to installation
- 3-year maintenance plan for trees and shrubs
- Underpass treatments to comply with North Split Aesthetic Design Guidelines
- Funding for Benjamin Harrison Presidential Site Old Northside Connector Neighborway
- Portions of Monon Loop to remain as permanent trail



Pause for Questions

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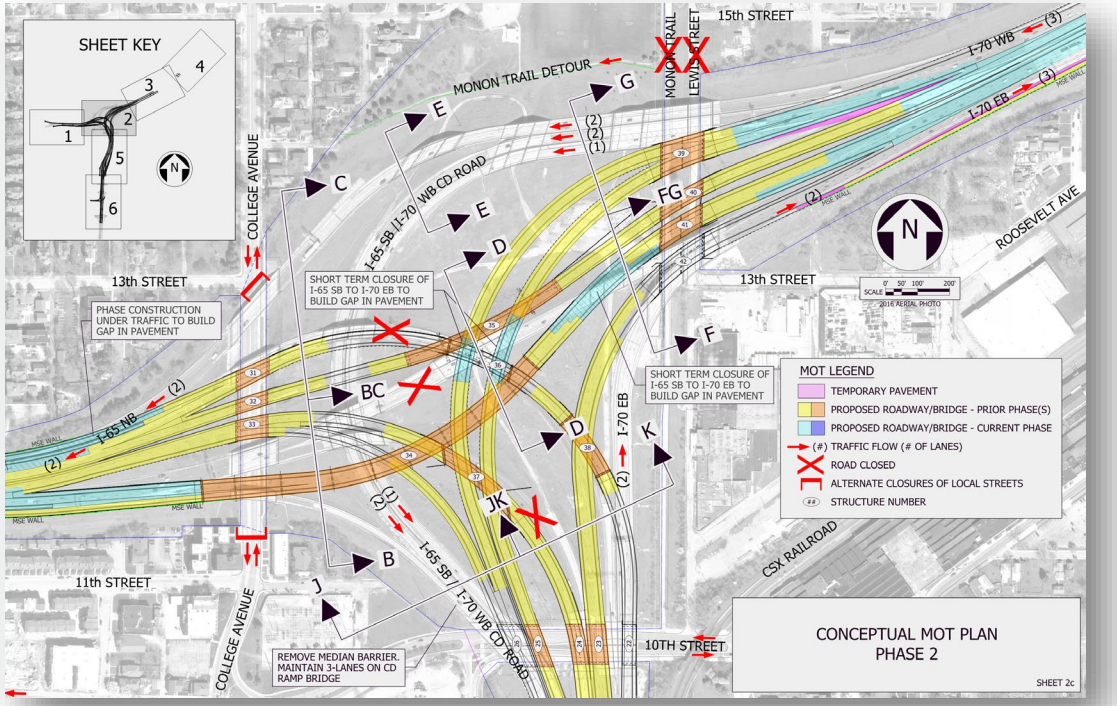
Traffic Impacts of Construction

Traffic Impacts

- Long-term traffic changes minimal due to no added through lanes
- Most traffic impacts will occur during construction
- Maintenance of Traffic (MOT) plan to be developed by design-build contractor
- MOT plan must meet INDOT criteria
- “Conceptual MOT Plan” by INDOT used to establish MOT criteria



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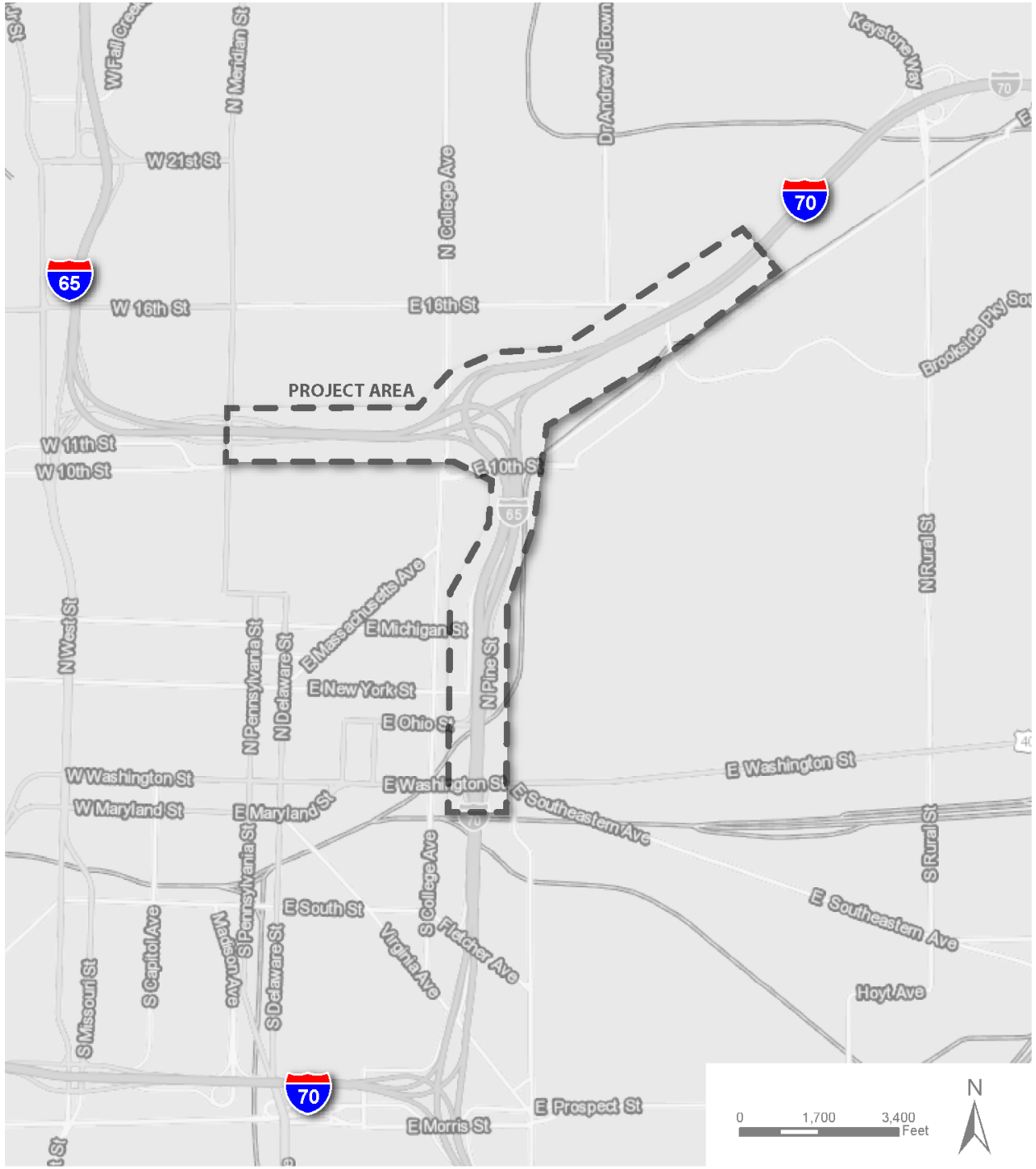
Downtown Access

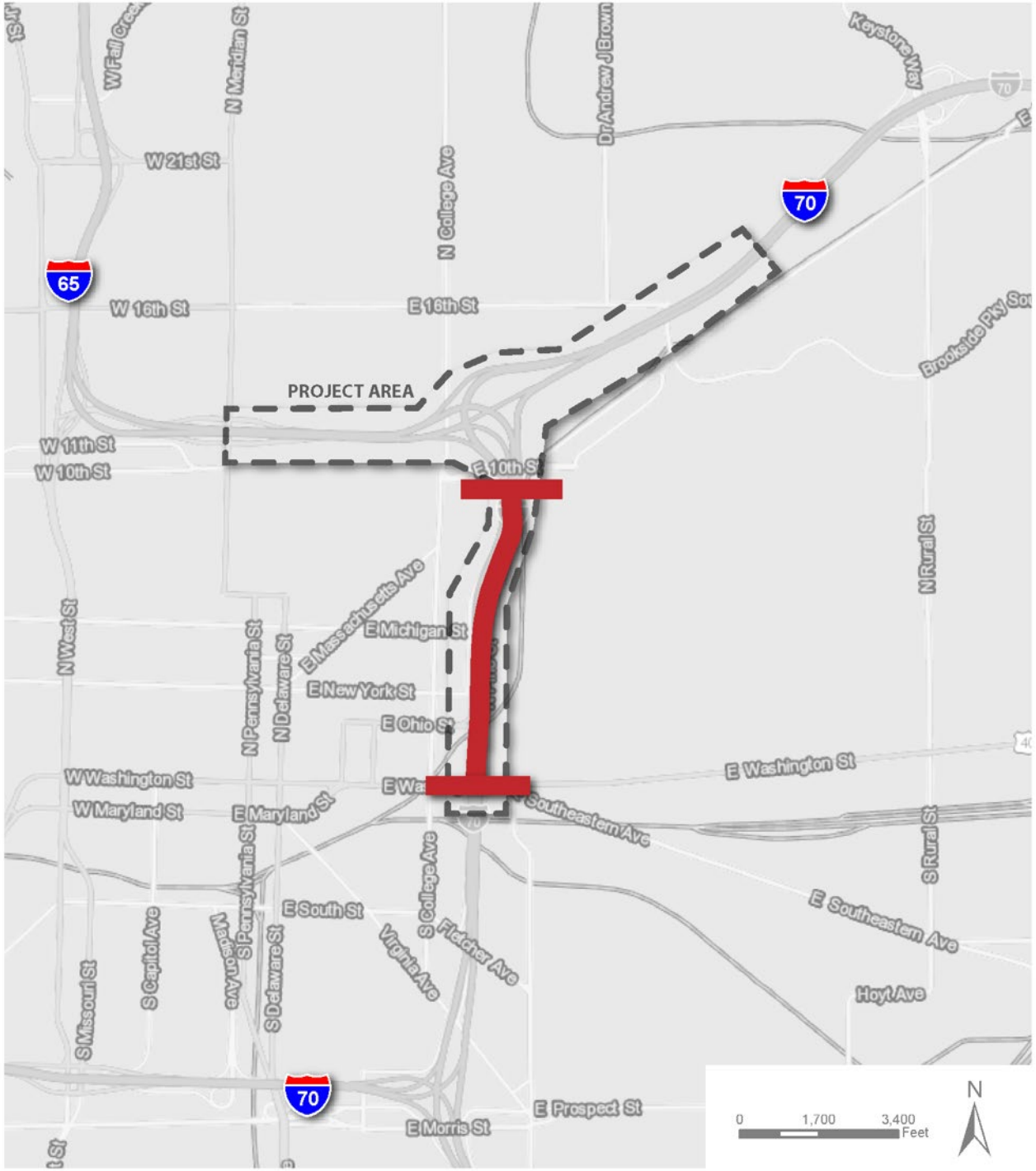
- North Split Construction Limits



NORTH SPLIT UPGRADES DRIVING PROGRESS

Downtown Access

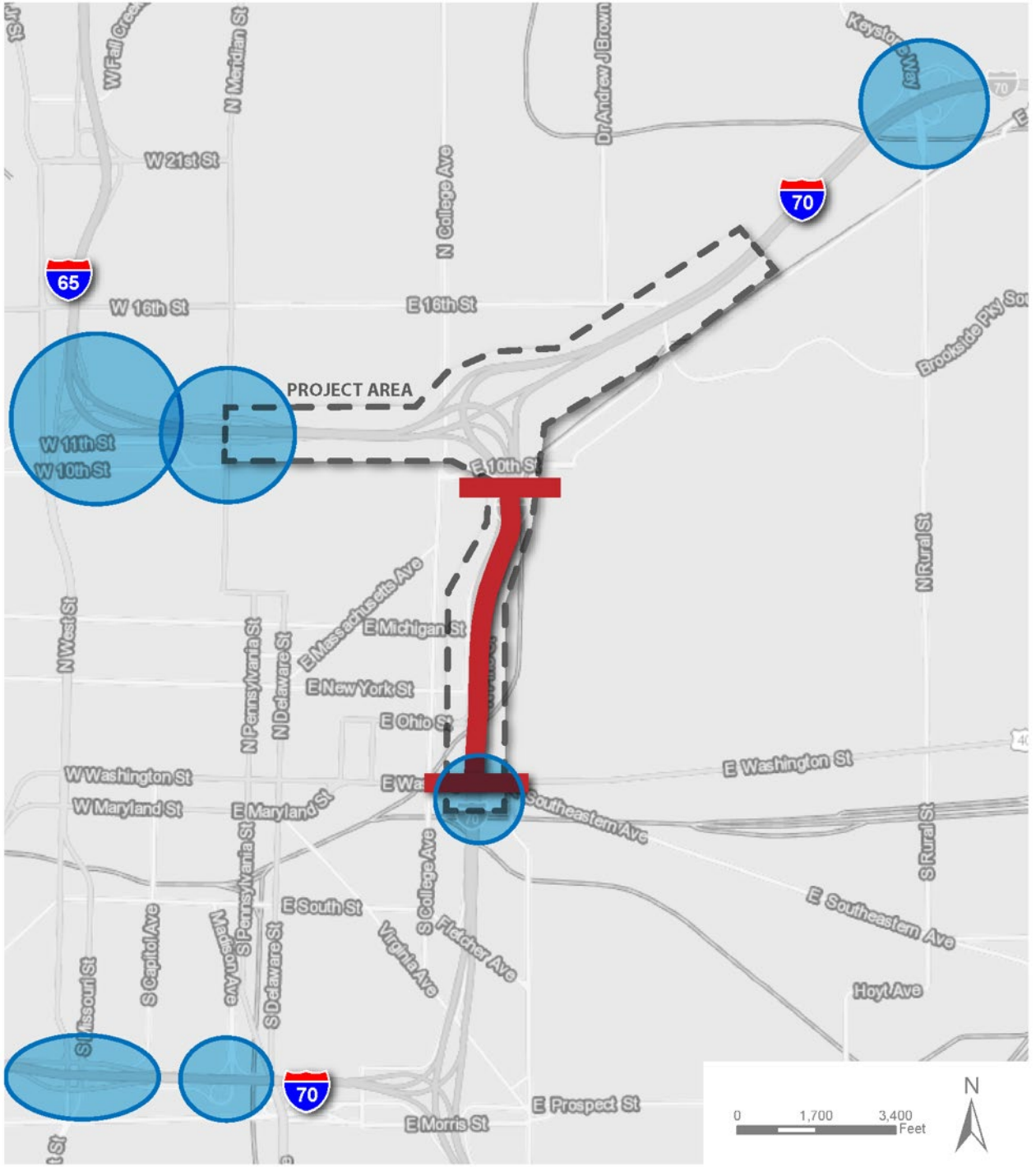
- I-65/I-70 through traffic closed between the North Split and Washington Street
- Closure to extend over two construction seasons
- Through traffic detour to I-465



NORTH SPLIT UPGRADES DRIVING PROGRESS

Downtown Access

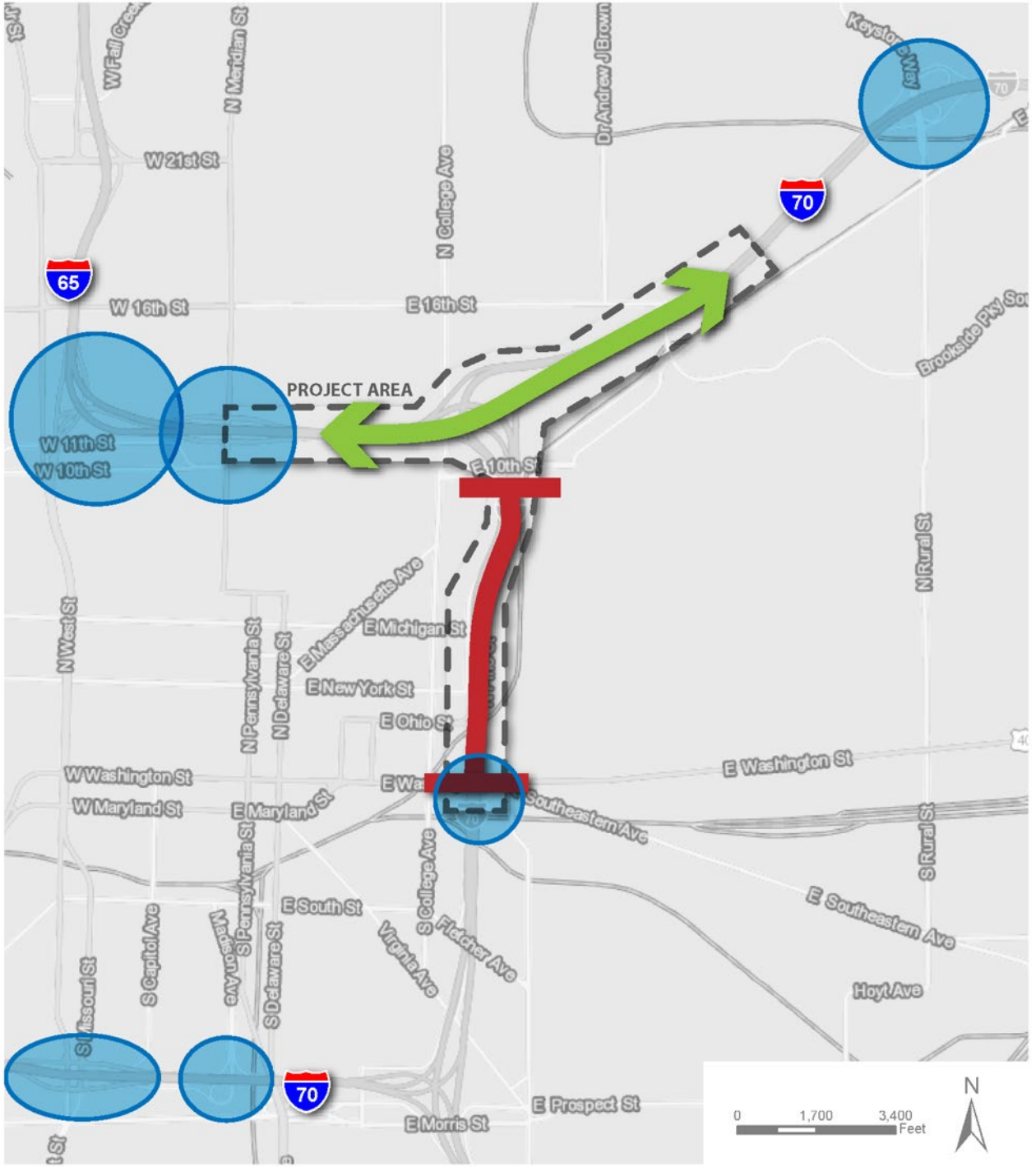
- Downtown exit and entrance ramps outside the North Split project area open at all times



NORTH SPLIT UPGRADES DRIVING PROGRESS

Downtown Access

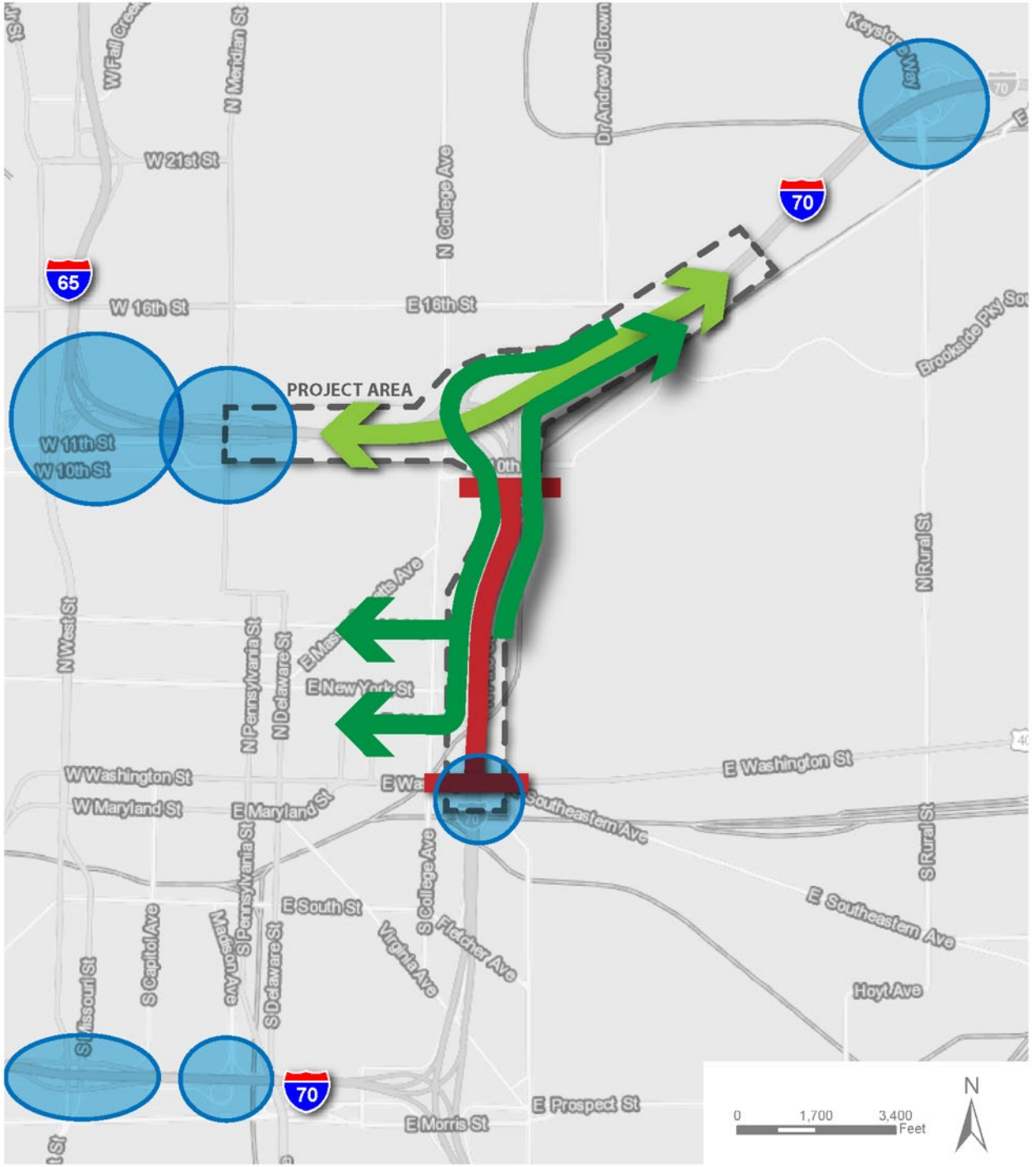
- I-65 to I-70 link across the north part of the North Split open to traffic each way
- May be short closure (up to 45 days) for construction of one bridge



NORTH SPLIT UPGRADES DRIVING PROGRESS

Downtown Access

- Pine Street entrance ramp to eastbound I-70 open at all times
- Westbound I-70 exit ramp open at all times to collector-distributor road
- Collector-distributor road to serve either Michigan Street or Ohio Street at all times



NORTH SPLIT UPGRADES DRIVING PROGRESS

Movement Closure Guidelines

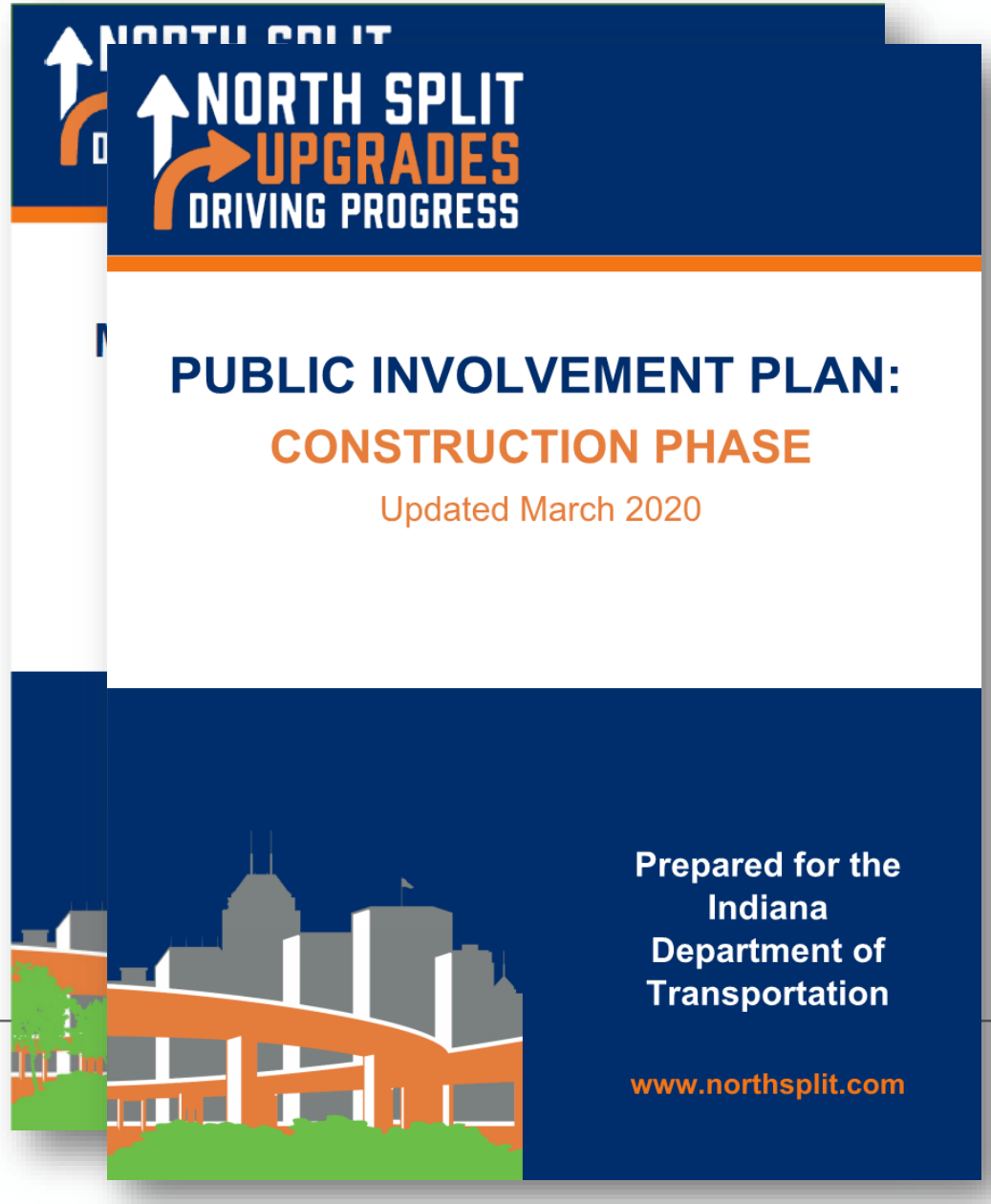
MOVEMENT	MAXIMUM
• I-65 / I-70 Mainline	2 seasons
• Eastside Exits* (Ohio /Michigan)	1 season
• Local ramps & bridges (not adjacent)	90 days

*Ohio Street and Michigan Street not closed at same time

NORTH SPLIT UPGRADES DRIVING PROGRESS

Mobility Management Plan (MMP)

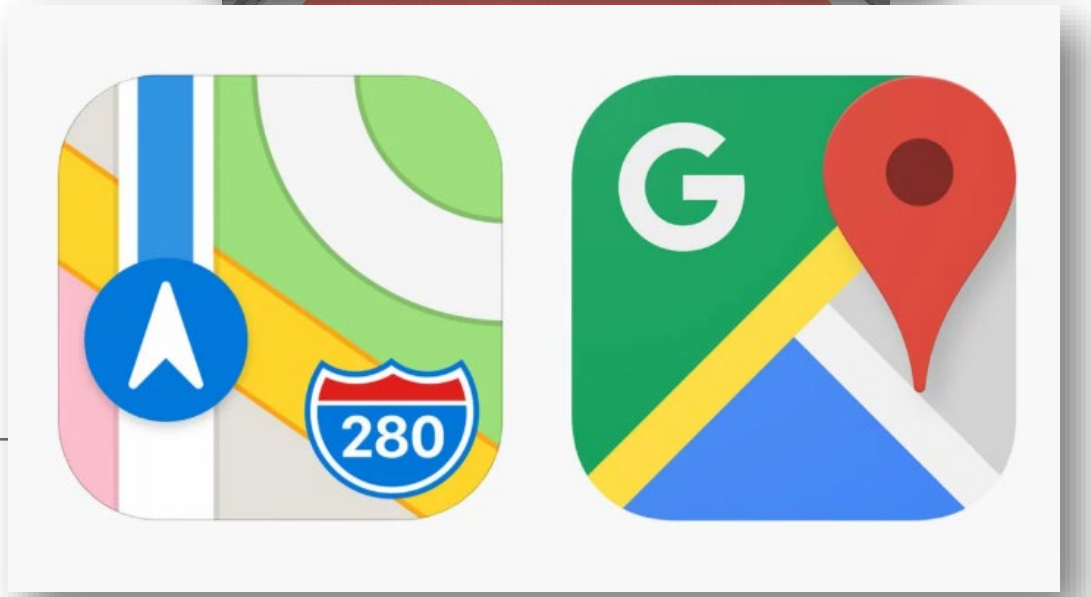
- MMP Goals
  - Optimize traffic operations on the available transportation network
  - Reduce overall roadway network demand
  - Provide enhanced motorist information
- MMP Task Groups
  - MOT/Construction
  - Local Traffic Operations
    - Subgroup – Emergency Response
  - Travel Demand Management
  - Communications & Public Outreach



NORTH SPLIT UPGRADES DRIVING PROGRESS

Travel Demand Management

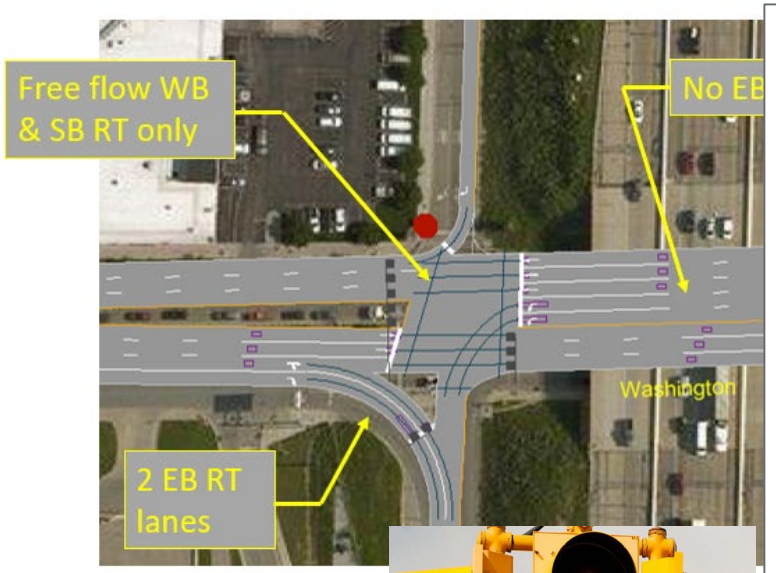
- Mode Choice
  - Transit
  - Carpool/Vanpool
  - Bike/Walk
- Trip Reduction / Reschedule
  - Staggered Work hours
  - Flextime
  - Work from Home
- Public and employer education program
- Real-time traveler information



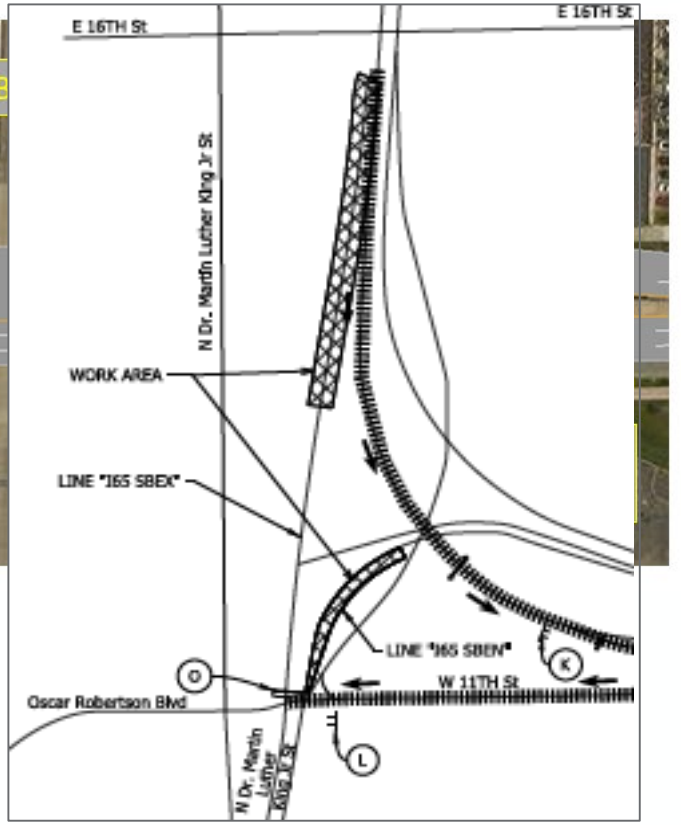
NORTH SPLIT UPGRADES DRIVING PROGRESS

Regional Traffic Improvements

- Adjacent Interchanges
  - Washington Street lane realignments
  - West Street added ramp lanes
- Regional traffic program
  - Working with Indianapolis DPW on ways to improve traffic flow
  - Indianapolis traffic signal improvements
  - Spot intersection and roadway improvements



Washington Street



West Street Interchange

NORTH SPLIT UPGRADES DRIVING PROGRESS

Next Steps

• Start Project Development	March 2017
• System-Level Analysis	May 2018
• Alternatives Screening Report	September 2018
• Preliminary Design / Enviro Study	2019 - 2020
• Select Design-Build Team	June 2020
• EA Published	Summer 2020
• EA Public Hearing	Summer 2020
• Final Environmental Approval	Fall 2020
• Construction start	Late 2020
• Construction complete	Late 2022

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Pause for Questions

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Aesthetic Design Guidelines

Aesthetic Design Guidelines

- The purpose of the Aesthetic Design Guidelines is to provide the Design-Build Team with aesthetic direction for their final design.
- The Aesthetic Design Guidelines are the result of an extensive public engagement process over the last 12 months, including meetings with:
  - Local neighborhoods and neighborhood organizations
  - Local agencies and oversight departments
  - Key local resource groups
  - Local business organizations
  - Local stakeholders and stakeholder groups

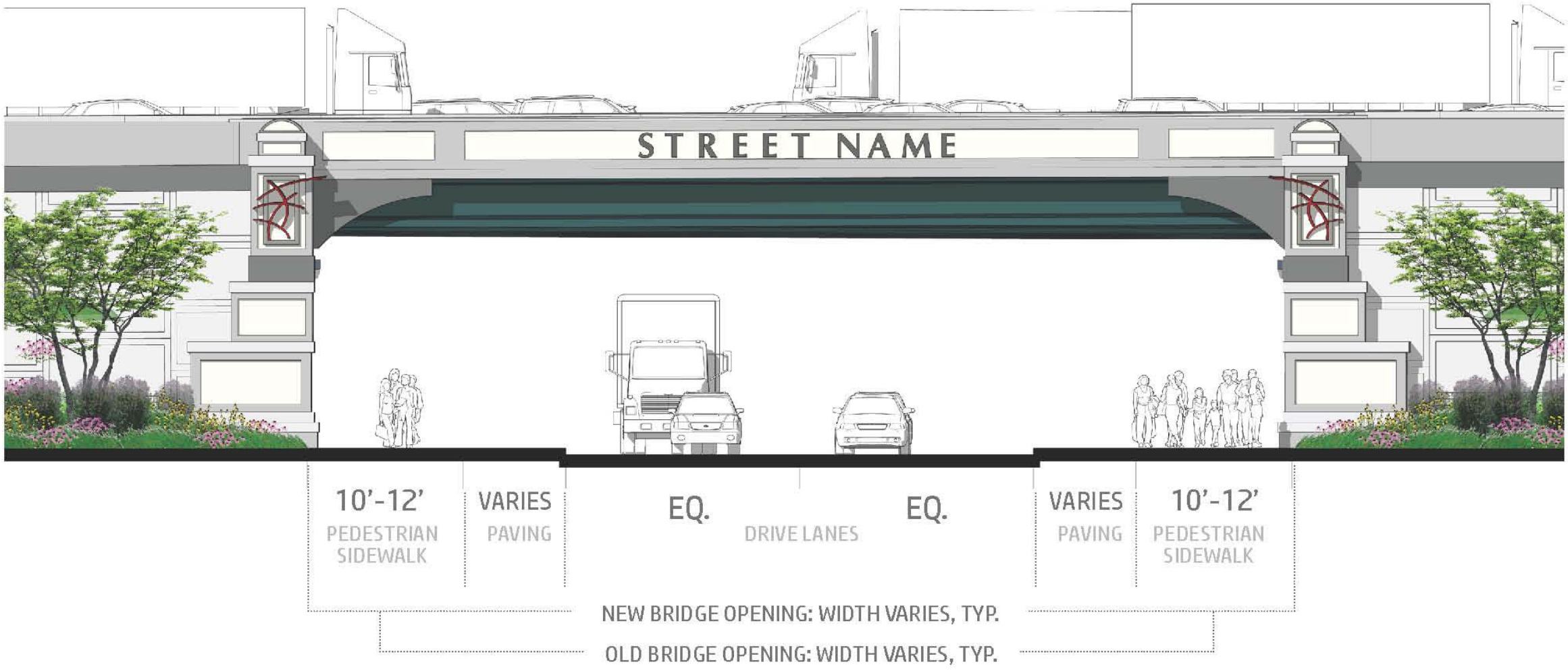
ATTACHMENT 6-1
NORTH SPLIT

AESTHETIC DESIGN GUIDELINES

INDIANA DEPARTMENT OF TRANSPORTATION
INDOT

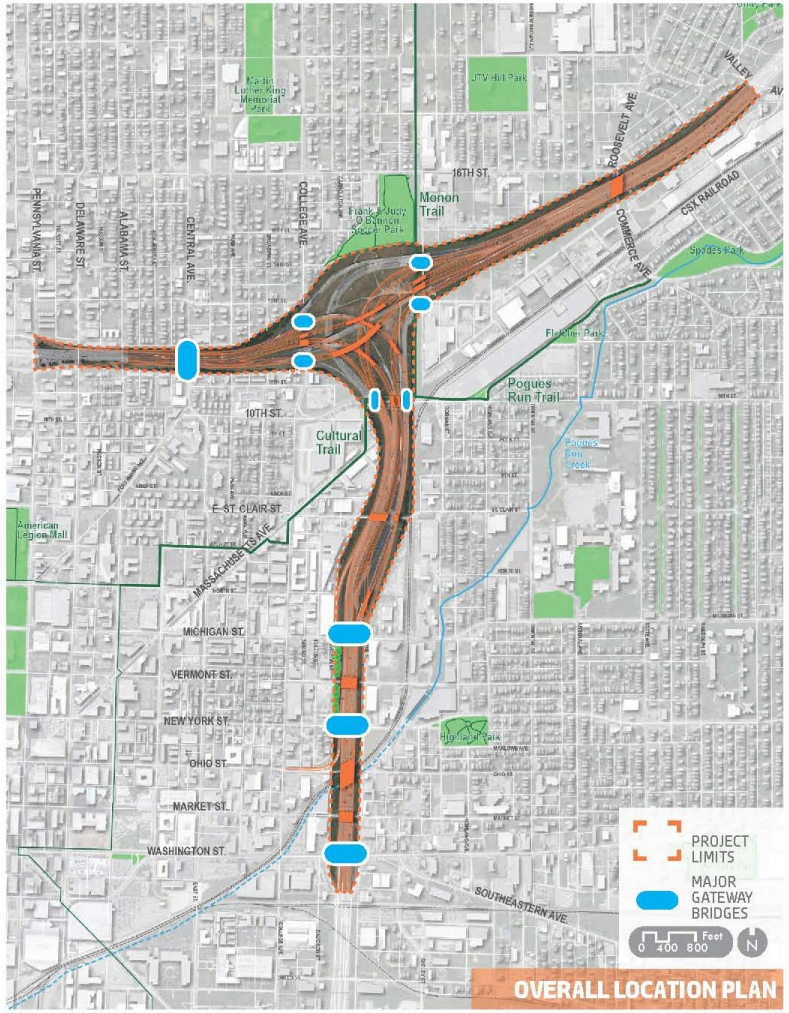
NORTH SPLIT UPGRADES
DRIVING PROGRESS

Aesthetic Design Guidelines



TYPICAL MAJOR GATEWAY BRIDGE ELEVATION

Aesthetic Design Guidelines

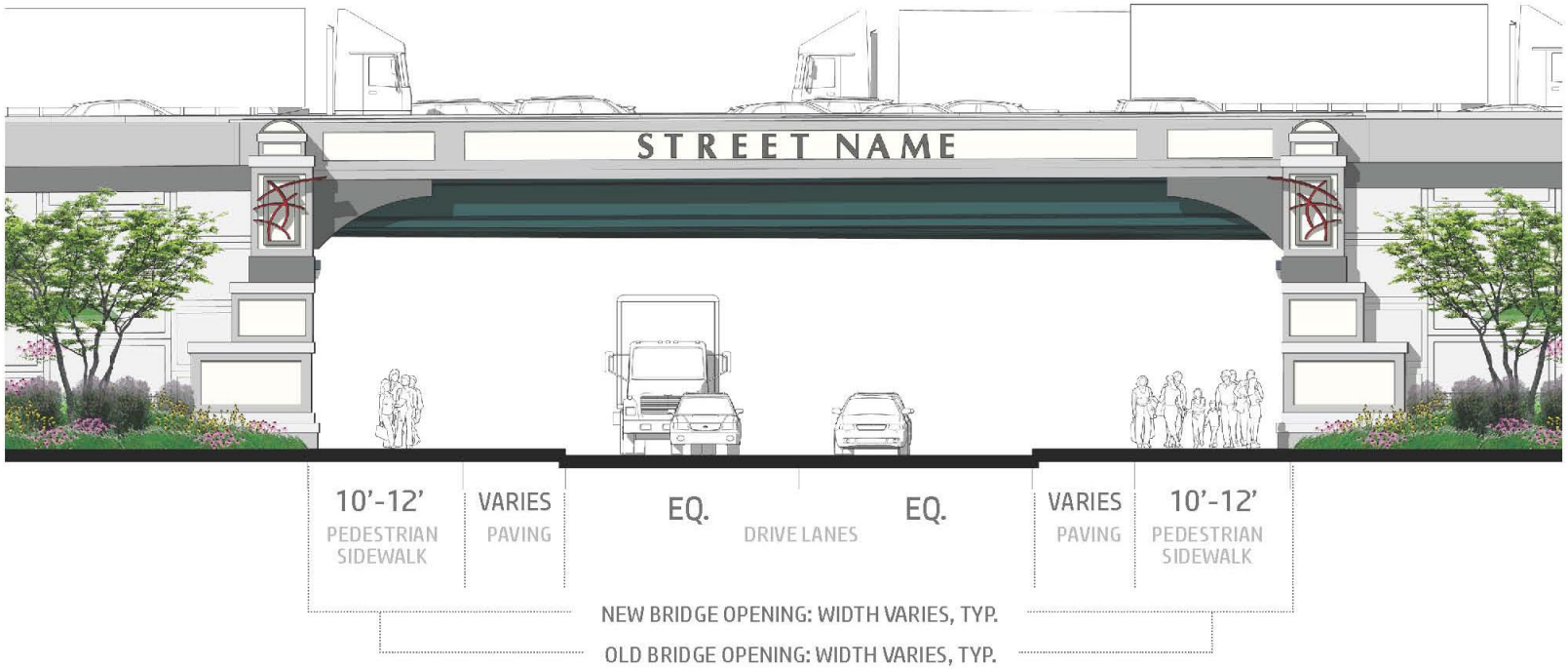


OVERALL LOCATION PLAN

BRIDGE APPLICATION
SINGLE SPAN

NOTES:

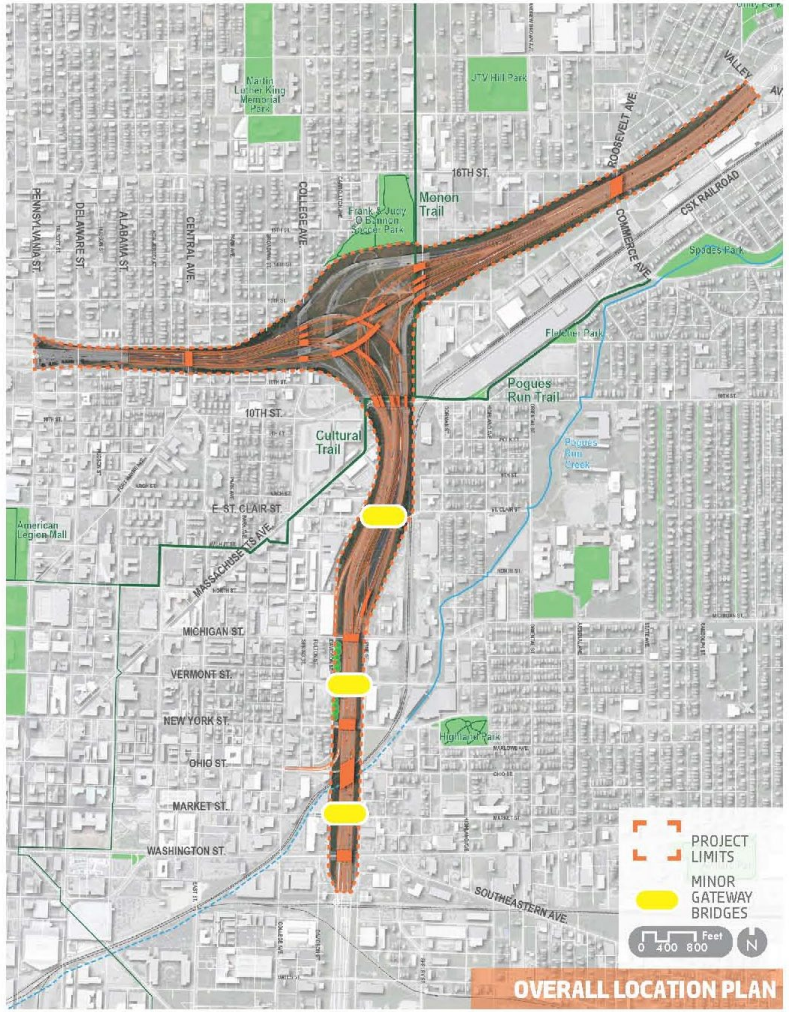
1. CORNER MONUMENTS ONLY REQUIRED ON THE OUTSIDE OF EXTERIOR BRIDGES FOR A TOTAL OF 4 PER CROSSING.



TYPICAL MAJOR GATEWAY BRIDGE ELEVATION

NORTH SPLIT UPGRADES DRIVING PROGRESS

Aesthetic Design Guidelines

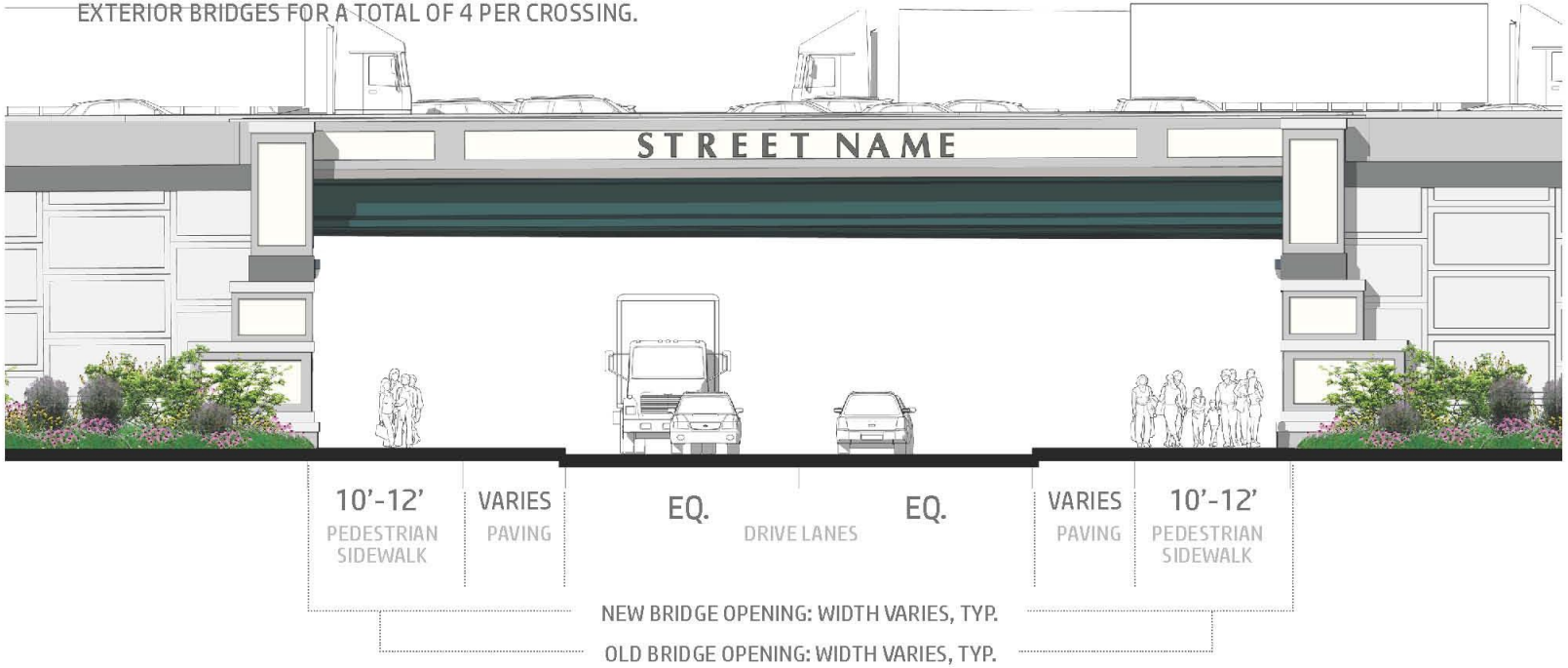


OVERALL LOCATION PLAN

BRIDGE APPLICATION

NOTES:

1. PLANTING AND LIGHTING BUFFER ZONES ONLY REQUIRED AT ST. CLAIR STREET CROSSING.
2. CORNER MONUMENTS ONLY REQUIRED ON THE OUTSIDE OF EXTERIOR BRIDGES FOR A TOTAL OF 4 PER CROSSING.

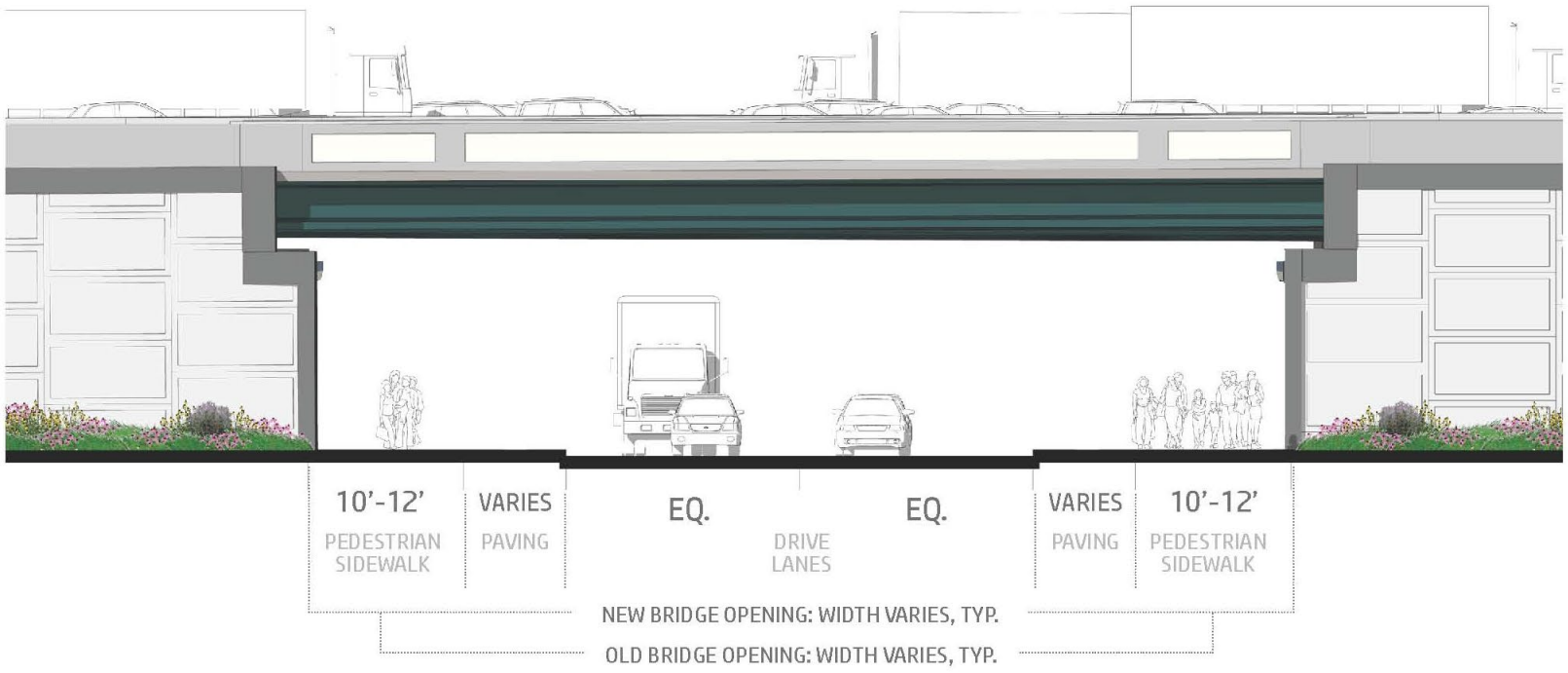


TYPICAL MINOR GATEWAY BRIDGE ELEVATION

NORTH SPLIT UPGRADES DRIVING PROGRESS

Aesthetic Design Guidelines

BRIDGE APPLICATION



TYPICAL STANDARD BRIDGE ELEVATION

NORTH SPLIT UPGRADES DRIVING PROGRESS

Aesthetic Design Guidelines

MAJOR GATEWAY SURFACING SUMMARY

- A consistent 3'-0" wide asphalt block paver band shall be constructed immediately adjacent to the back of curb and parallel to the roadway. Materials shall be a "ground finish". Color shall resemble Hanover A80044 or approved equal.
- Asphalt block paver bands (or other vehicular-rated paver type) shall be constructed perpendicular to the roadway. Paver bands are to be 3'-0" wide at 19'-0" O.C. maximum. Materials should be be a "ground finish". Color shall resemble Hanover A80046 or approved equal.
- Standard concrete pavement will separate each perpendicular asphalt paver band. All concrete surfaces shall be scored as indicated on the following drawings and receive a standard broom finish.

TREATMENT PATTERNS

RUNNING BOND PATTERN

SAW CUT JOINTS

COLOR BANDING

ACCENT COLORS

HEAVY DUTY

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Aesthetic Design Guidelines

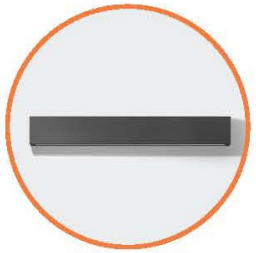
DOWN LIGHTING

Wall Mounted:

Bar Style down lighting shall be surface mounted to abutment wall coping to achieve pedestrian level lighting requirements. Mock-up shall be required for approval.

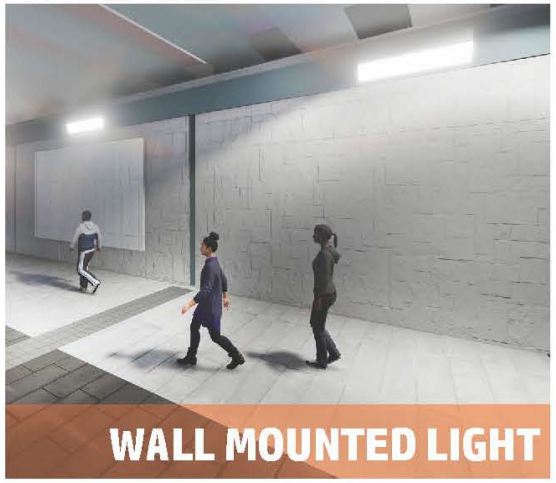
APPROPRIATE FIXTURES

TARGETTI | JEDI
COMPACT IP67 INTEGRAL



BEGA | LED
WALL WASHER

LED LINEAR | XOOLUM
IP67



Column Mounted:

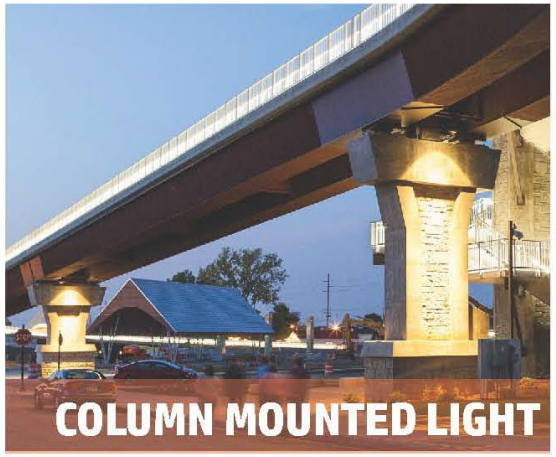
Down lighting shall be mounted to the pier cap. Aesthetic light wash shall be directed vertically down the column and horizontally across the bridge underside.

APPROPRIATE FIXTURES

BEGA | LED
WALL WASHER

BEGA | LED
COMPACT FLOOD

SELUX | AVANZA

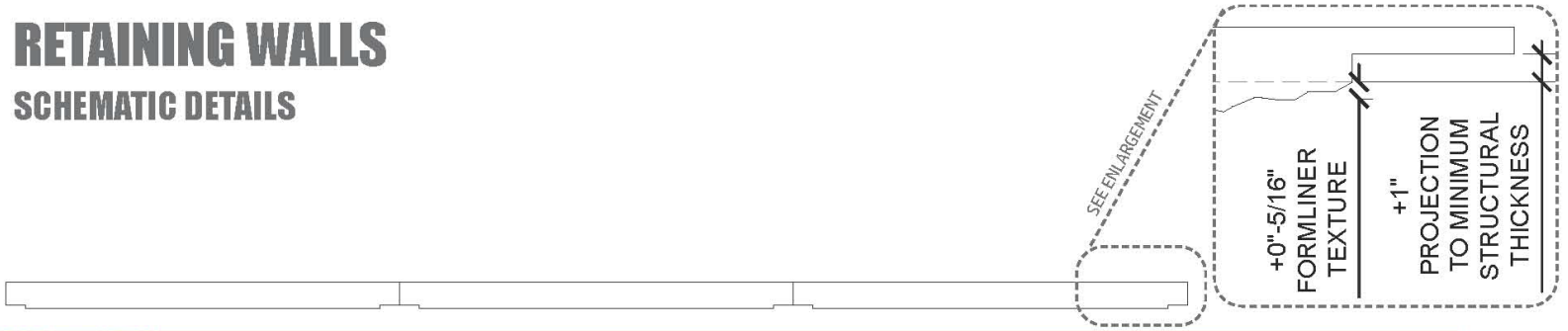


NORTH SPLIT UPGRADES DRIVING PROGRESS

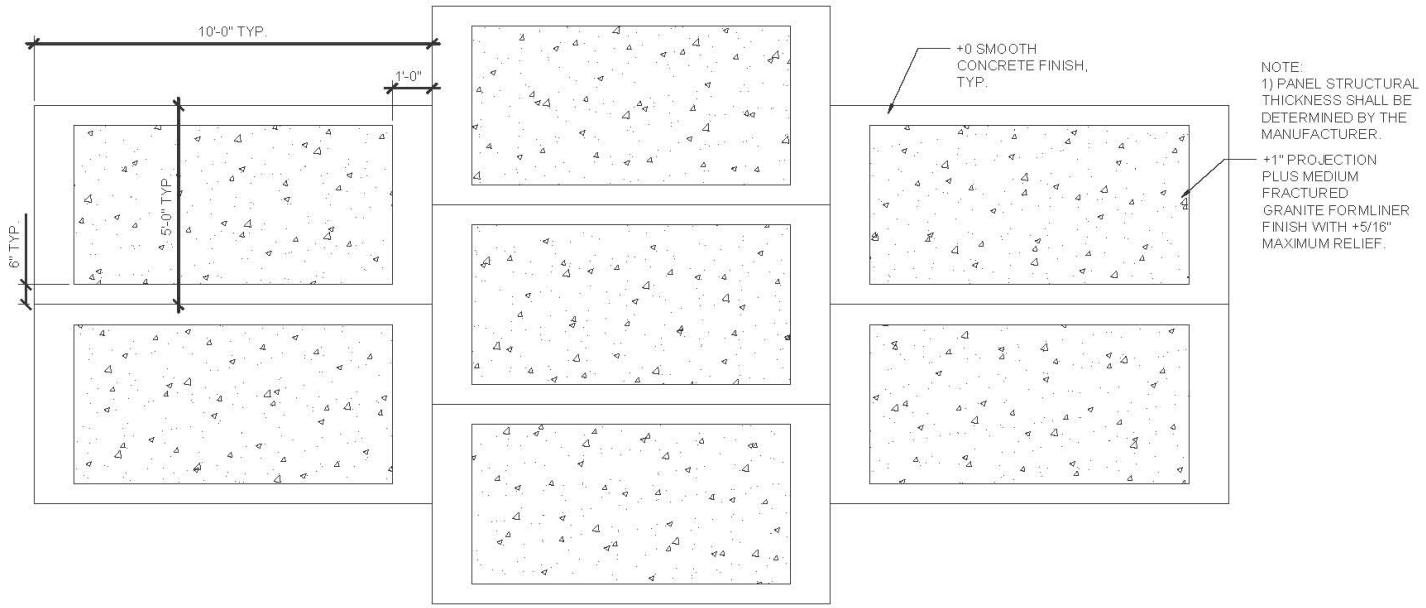
Aesthetic Design Guidelines

RETAINING WALLS

SCHEMATIC DETAILS



PLAN (TYPICAL)



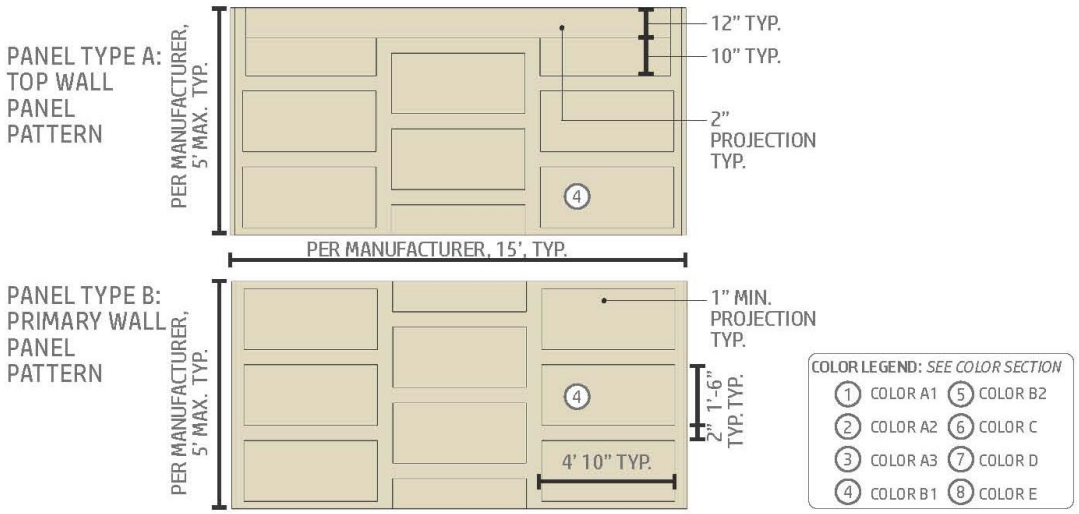
ELEVATION (TYPICAL)

Aesthetic Design Guidelines

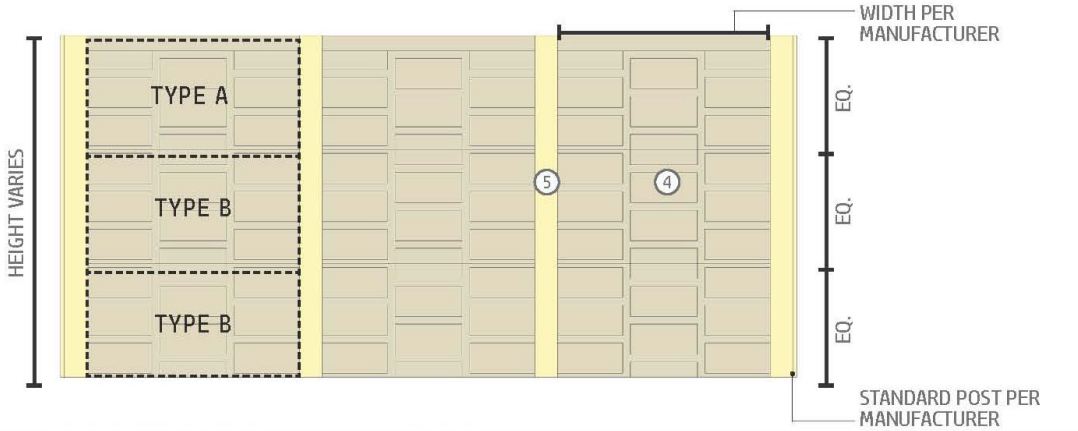
SOUND BARRIERS

Characteristics

- Panel patterns shall be proportionally scaled to meet manufacturer's requirements.
- Panel textures, colors and patterns shall be visually consistent with MSE walls.



SOUND BARRIER PANEL TYPES (TYPICAL)



SOUND BARRIER FRONT ELEVATION (TYPICAL)

NORTH SPLIT UPGRADES DRIVING PROGRESS

Aesthetic Design Guidelines

- Prototypical Treatment Application- Daytime View

NORTH SPLIT UPGRADES DRIVING PROGRESS

Aesthetic Design Guidelines

- Prototypical Treatment Application- Night-time View

NORTH SPLIT UPGRADES DRIVING PROGRESS

Aesthetic Design Guidelines

LANDSCAPE INTRODUCTION

Landscape Summary

This section of the North Split Aesthetic Design Guidelines provides direction for landscape form and function, evaluating how vegetative aesthetic treatments can also serve the needs for the INDOT-owned interstate, the City-owned local streets and the surrounding communities.

Information gained from neighborhood workshops and surveys during the Context Sensitive Solutions process of the I-65/I-70 North Split Project indicated that the public preferred a more naturalistic approach to landscape design with many referring to the term "urban forest." This urban forest concept has been considered as part of the design guidelines - found in *Interchange Plantings* of this section.

This document also recognizes the existence of INDOT standards, as well local groups (such as Keep Indianapolis Beautiful) and resources for achieving the proposed design.

Aesthetic Design Guidelines

LANDSCAPE OVERVIEW

Landscape Design Typology

The landscape palette includes a range of treatments that focus primarily on native plant selections to enhance the aesthetic appeal of the interchange. The design concept places plant species within urban conditions that best represent their naturally occuring plant communities. The typologies for the landscape treatment include:

- Tree Preservation Areas as "The Nature Reserve"
- 10' Buffer-Zones as "The Lawn"
- Side Slope Plantings as "The Uplands"
- Screen Plantings as "The Woodlands"
- Interchange Plantings as "The Prairie's Edge"
- Detention Basin Plantings as "The Wetlands"

Typology 1: Tree Preservation

Tree Preservation Areas protect trees that are deemed "significant" to the landscape. Tree preservation areas were determined through the Section 106 Consultation Process and are included in the final "Do Not Disturb" areas for the project site.

Typology 2: 10' Buffer-Zone

The 10' Buffer-Zone is intended to maintain a set-back for plantings so there is no interference between the landscaped areas and roadway functions.

Typology 3: Side Slope Plantings

Plants, rather than extended infrastructure, can be used for erosion control and soil stabilization along the interstate embankments as a cost-effective and less-infrastructure dependent option.

Typology 4: Screen Plantings

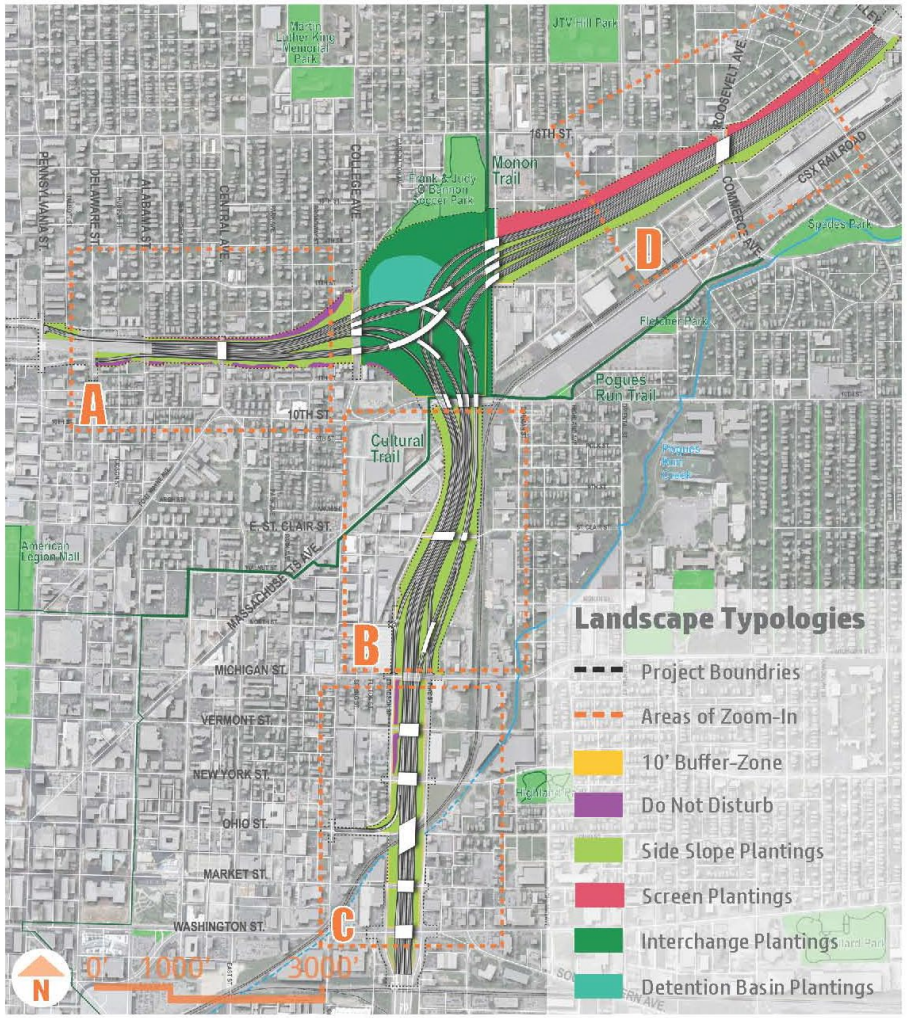
Plants can minimize the appearance of sound barriers from adjacent residences.

Typology 5: Interchange Plantings

Plants can give purpose to expansive spaces, within and around the interchange, in a manner that is low-cost and less maintenance intensive, while still providing visual interest.

Typology 6: Detention Basin Plantings

Plants allow for the filtration and infiltration of storm water on site. As such, a heavily planted area for the purpose of stormwater detention - a dry extended detention basin - is favored over a traditional retention pond for the benefits it can offer the urban landscape.



NORTH SPLIT UPGRADES DRIVING PROGRESS

Aesthetic Design Guidelines

TYPOLOGY 1: TREE PRESERVATION AREAS

Design Intent

Tree Preservation Areas protect trees that are deemed "significant" to the landscape. The tree preservation areas are included in the final "Do Not Disturb" areas for the project site.

Further details about tree preservation in the I-65/I-70 North Split Project can be referenced from the Section 106 Consultation Process and should correspond with the final "Do Not Disturb" project limits.

Design Concept 'The Nature Reserve'

Protect trees throughout all phases of construction, keeping valued natural elements existing within the city.

Benefits

- Retain visual interest
- Protect environmental health
- Provide erosion control

Tree Values

Trees provide lifelong environmental and aesthetic benefits that improve community quality of life. Trees add value to their surroundings by preserving water and soil quality, removing pollutants from the air, lowering surface and air temperatures and providing habitat for wildlife. While trees are some of our most valuable urban assets, they are vulnerable to environmental conditions.

Tree Protection

Trees have basic needs for survival and growth. Water and soil nutrients must be managed to maintain their health, safety and appearance. If not properly protected, construction activities such as soil compaction, grading, improper root and limb pruning, bark injury, incorrect storage of construction materials and dumping of waste can cause stress and damage to trees. However, in most cases, trees will survive if separated from construction equipment and materials.

Various professionals are involved in protecting trees throughout the construction process, including arborists, landscape architects, engineers, planners and municipal agencies. Protecting trees takes time, money and communication. All phases of construction should include tree protection procedures.

According to the Penn State Extension's *A Guide to Preserving Trees in Development Projects*, Tree preservation occurs during the entire construction process:

Pre-construction

- Tree inventory
- Planning, design, negotiations
- Removals
- Staking of construction footprints under trees—required limb pruning
- Insect control or other care
- Fencing preserved trees

Construction

- Communication and education
- Protection zones
- Required root pruning
- Maintenance of fencing
- Monitoring tree health
- Tree care

Post-Construction

- Communication and education
- Protecting
- Tree care

Aesthetic Design Guidelines

TYPOLOGY 2: 10' BUFFER-ZONES

10' Buffer-Zones

The 10' Buffer-Zones are intended to maintain a set-back for plantings so there is no interference between the landscaped areas and roadway functions, as well as providing unobstructed views.

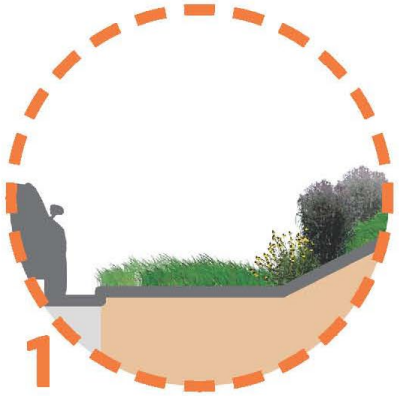
Design Concept 'The Lawn'

The Buffer-Zones provide a uniform edge around all plantings allowing for a "naturalized" look, while keeping a manicured appearance of turf amongst the urban context. This appearance is created through the use of a "low-to-no-mow" seed mix.

Benefits

- Minimizes costs associated with mowing and maintenance
- Creates a safe, open buffer zone along the roadway
- Provides order to naturalized plantings

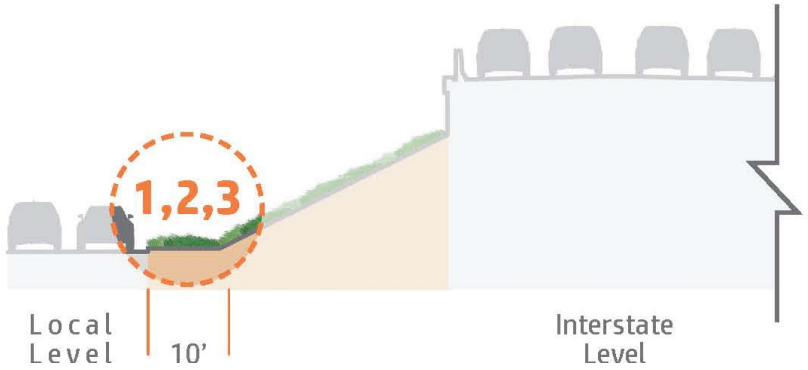
TYPOLOGY 2: 10' BUFFER-ZONES



Standard Condition: Buffer-Zone Lining Local Level Roadway Edges

Potential Condition: Street Tree at Local Level as part of the Buffer-Zone

Potential Condition: Street Tree and Pedestrian Walk at Local Level as part of the Buffer-Zone



Note: The Buffer-Zones also occur in the areas between side slopes and property lines, as well as along the edge of any trails/walks.

10' Mown-Buffer-Zone Scenarios

Eco-lawn natural appearance on slope.

Eco-lawn mown versus natural appearance.

NORTH SPLIT UPGRADES DRIVING PROGRESS

Aesthetic Design Guidelines

TYPOLOGY 3: SIDE SLOPE PLANTINGS

Design Intent

Plants, rather than extended infrastructure, can be used for erosion control and soil stabilization along the interstate embankments as a cost-effective and less-infrastructure dependent option.

Design Concept: 'The Uplands'

Species of the upland plant community provide a root system for erosion control measures and adapt to the constructed terrain.

Benefits

- Unifies the east, west and south legs through repetition of plant massing and grouping
- Addresses erosion control concerns with an aesthetic solution
- Minimizes costs associate with mowing and maintenance
- Supports native flora and fauna

TYPOLOGY 3: SIDE SLOPE PLANTINGS

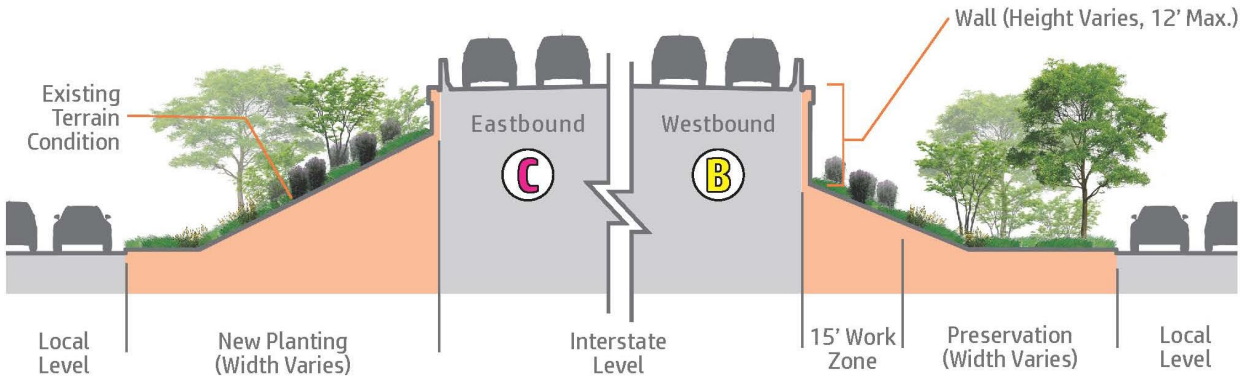
Itea virginica

Fragrant Sumac

Winterberry

Smooth Sumac

TYPOLOGY 3, CONDITIONS C & B



Minnesota Dept. of Transportation
Slope planting - forbs and grasses.

NORTH SPLIT UPGRADES DRIVING PROGRESS

Aesthetic Design Guidelines

TYPOLOGY 4: SCREEN PLANTINGS

Design Intent

Plants can minimize and soften the appearance of sound barriers.

Design Concept: 'The Woodlands'

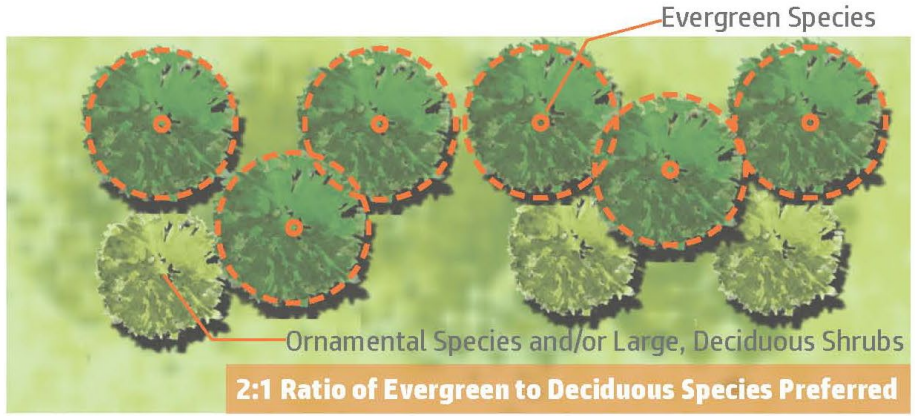
The massing of evergreen and deciduous plants at the base of sound barriers can create a natural backdrop that mimics a woodland edge transition, when viewed from adjacent properties.

Benefits:

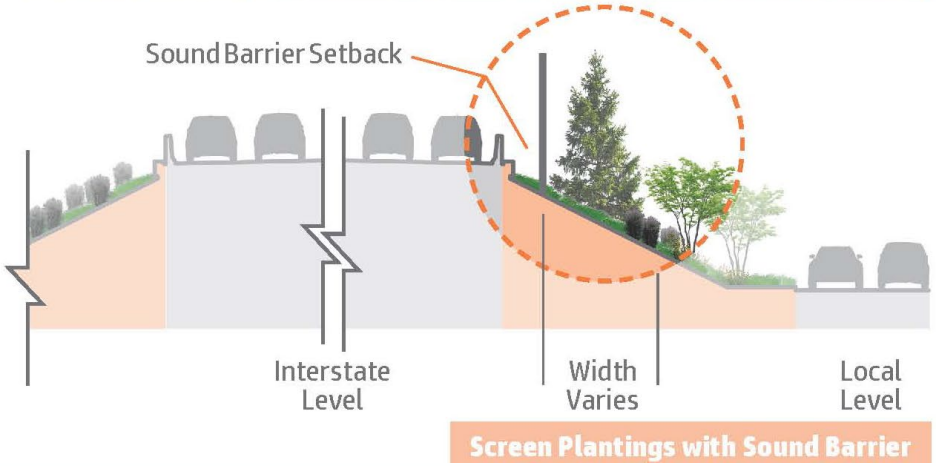
- Reduces the visual prominence of sound barriers
- Creates a visually interesting buffer and soft edge
- Offers a natural backdrop to neighboring communities

TYPOLOGY 4: SCREEN PLANTINGS

Spacing between screen tree plantings to be a min. of 10'. Plants should be staggered in placement, as seen in diagram on page 54.



Trees (particularly evergreen species) shall be placed so that they grow together to form a "green wall". A 2:1 ratio of evergreen to deciduous species is needed in order to achieve this effect as well as a maximum spacing of 10' on-center. Any location where a sound barrier is implemented, a screen will be used to camouflage and soften the appearance.



Green Pillar Pin Oak

Slender Silhouette Sweetgum

Freeman Maple

Aesthetic Design Guidelines

TYPOLOGY 5: INTERCHANGE PLANTINGS

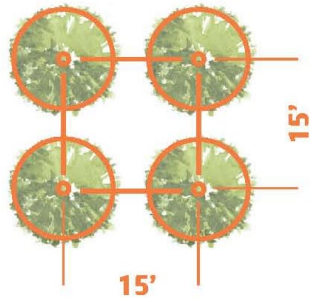
Design Intent

Plants can give purpose to expansive spaces in a manner that is low in cost and required maintenance, but high in visual quality. Over time, the maturation of trees in this area will create a more dense canopy that will begin to take on characteristics of some stakeholder desires to create an "urban forest." This is essentially the heavy massing of trees to create an urban vegetative treatment style.

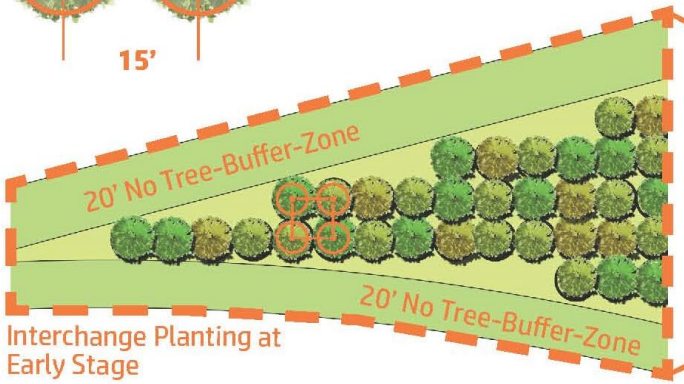
Design Concept: 'The Prairie's Edge'

The seeding and planting of large, open areas with mixes of native grasses, sedges and forbs, as well as a variety of tree species, responds to the public's desire for a natural-feel landscape juxtaposed against the urban setting.

TYPOLOGY 5: INTERCHANGE PLANTINGS, CANOPY TREES



The illustrations to the left and below show the use of a fractured grid pattern for the placement of trees within the interchange.



Interchange Planting at Early Stage

The approach to planting such a space shall be one of restorative quality - planting large quantities in close proximity - where survival of the fittest tree specimen will result in a naturalistic appearance. The interchange planting will follow Keep Indianapolis Beautiful's (KIB) planting standard of 15' on-center maximum spacing.

Canopy Tree Grid Arrangement

Tulip Tree

Black Gum

Cardno
Prairie Mix in bloom.

Cardno
Native Wildflower Seed Mix.

Michael Volker via Pinterest
Prairie planting early to late summer.

Iowa Natural Heritage Foundation
Prairie planting late summer to early fall.

NORTH SPLIT UPGRADES DRIVING PROGRESS

Aesthetic Design Guidelines

TYPOLOGY 6: DETENTION BASIN PLANTINGS

Design Intent

A heavily planted area for the purpose of stormwater detention - a dry extended detention basin - is favored over a traditional retention pond for benefits it offers the urban landscape.

Design Concept: 'The Wetlands'

A detention basin to resemble that of a wetland environment will provide more aesthetic value to the site, minimize the amount of standing water and allow even infiltration.

Benefits

- Filtrates pollutants from storm water runoff
- Allows for infiltration of otherwise standing water
- Designed alternative to traditional systems, offering aesthetic value
- Blends "natural" and urban environments
- Supports local flora and fauna

Seed Mix Composition:

STORMWATER SEED MIX

This planting application shall be used within the interchange for vegetated swales and in lieu of a retention pond.

The seed mix must tolerate highly fluctuating water levels and poor water quality associated with urban stormwater runoff with the following composition:

Approximately 10% Permanent Grass/Sedge Species Seed, 5% Forb Species Seed and 85% Temporary Cover Species Seed applied at a rate of approximately 35 PLS (Pure Live Seed) pounds per acre.

PRAIRIE SEED MIX

See *Typology 5: Interchange Plantings* section for Appropriate Seed Mix

The *Prairie Seed Mix* can be incorporated with the *Stormwater Seed Mix* in the upper third of basins that experience long, dry periods.

Detention Basin General Design Guidelines:

- Basin design should conform to regulations set by INDOT and local stormwater ordinances (IDEM Storm Water Quality Manual).
- Construct of basins should allow for the slow infiltration of water, with standing water persisting for no less than 24 hours and no longer than 72.
- Basins should be graded in a way that resembles a natural pond bed, having curvilinear and undulating forms.
- Bio-retention areas should be included at inlets/outlets of basins.
- Basin size should be dictated by the watershed coverage of collected runoff.
- Overall shape and side slopes should follow a 4:1,or flatter, ratio in construct.

Economy Prairie Seed Mix - Yellow Coneflower

Stormwater Seed Mix - Crested Oval Sedge

Naturalized Stormwater Detention Basin

NORTH SPLIT UPGRADES DRIVING PROGRESS

Aesthetic Design Guidelines

Aesthetic Design Guidelines

NORTH SPLIT UPGRADES DRIVING PROGRESS

Pause for Questions

I-65/I-70 North Split Project

Project Information: www.northsplit.com