



ATTACHMENT 6-1 NORTH SPLIT

AESTHETIC DESIGN GUIDELINES





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DESIGN GUIDELINES

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COLOR

CHART:

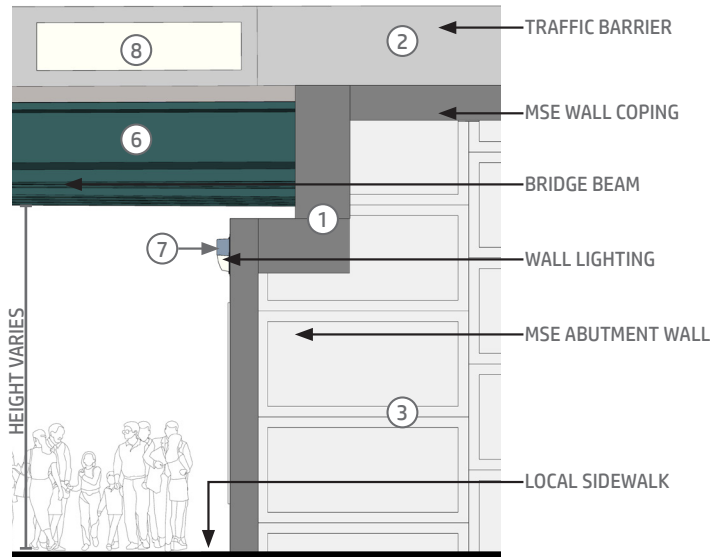
APPLICATION:

<div>Color A1: RGB: 128, 128, 128</div> <div>Color A2: RGB: 204, 204, 204</div> <div>Color A3: RGB: 240, 240, 240</div>	CONCRETE (A) <ul style="list-style-type: none"> •Bridge Monuments, Piers & Caps •Bridge Rails & Parapets •Sign Structure Supports •Retaining Walls •Bridge Abutment Walls
<div>Color B1: RGB: 187, 179, 159</div> <div>Color B2: RGB: 252, 219, 181</div>	CONCRETE (B) <ul style="list-style-type: none"> •Noise Barrier Panels, Caps & Posts
<div>Color C: RGB: 55, 95, 95</div>	CONCRETE & STEEL (C) <ul style="list-style-type: none"> •Bridge Beam/Girder (Color shall be applied at locations where metallizing is not required)
<div>Color D: RGB: 65, 64, 66</div>	METALS (D) <ul style="list-style-type: none"> •Ornamental Lights •Sign Lettering •Noise Barrier Posts
<div>Color E: RGB: 219, 195, 135</div>	ACCENT (E) <ul style="list-style-type: none"> •Wall Detailing •Corner Monument Detailing •Relief Texture

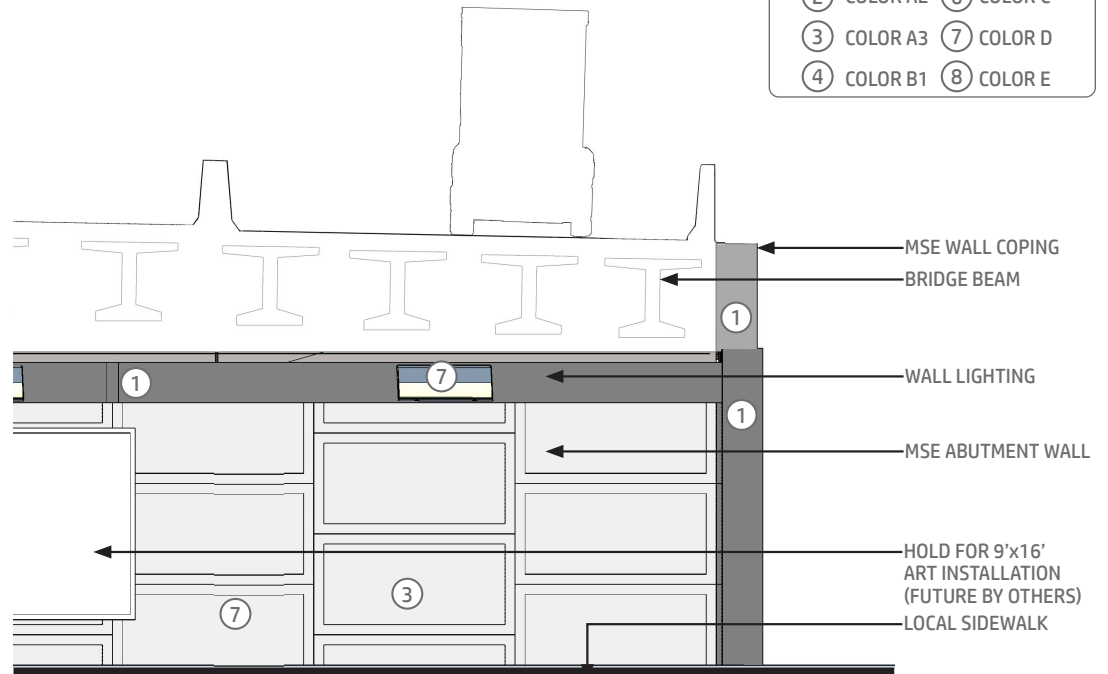
RGB STANDS FOR: RED (R) GREEN (G) BLUE (B)

STANDARD ABUTMENT

NOTE: Number of down-lighting and column lighting shall be determined in accordance with the technical provisions and project standards.



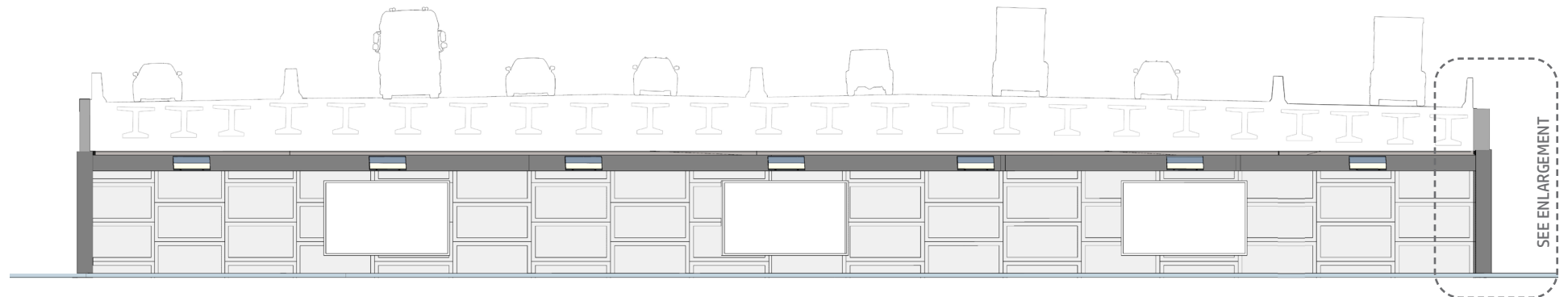
END ELEVATION (TYPICAL)



CROSS SECTION ENLARGEMENT (TYPICAL)

COLOR LEGEND: SEE COLOR SECTION

- | | |
|------------|------------|
| ① COLOR A1 | ⑤ COLOR B2 |
| ② COLOR A2 | ⑥ COLOR C |
| ③ COLOR A3 | ⑦ COLOR D |
| ④ COLOR B1 | ⑧ COLOR E |



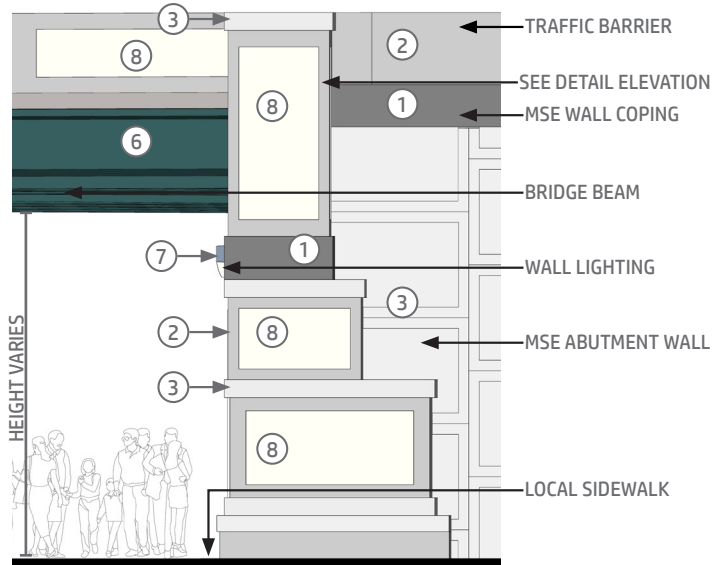
CROSS SECTION ELEVATION (TYPICAL)

MINOR MONUMENT ABUTMENT

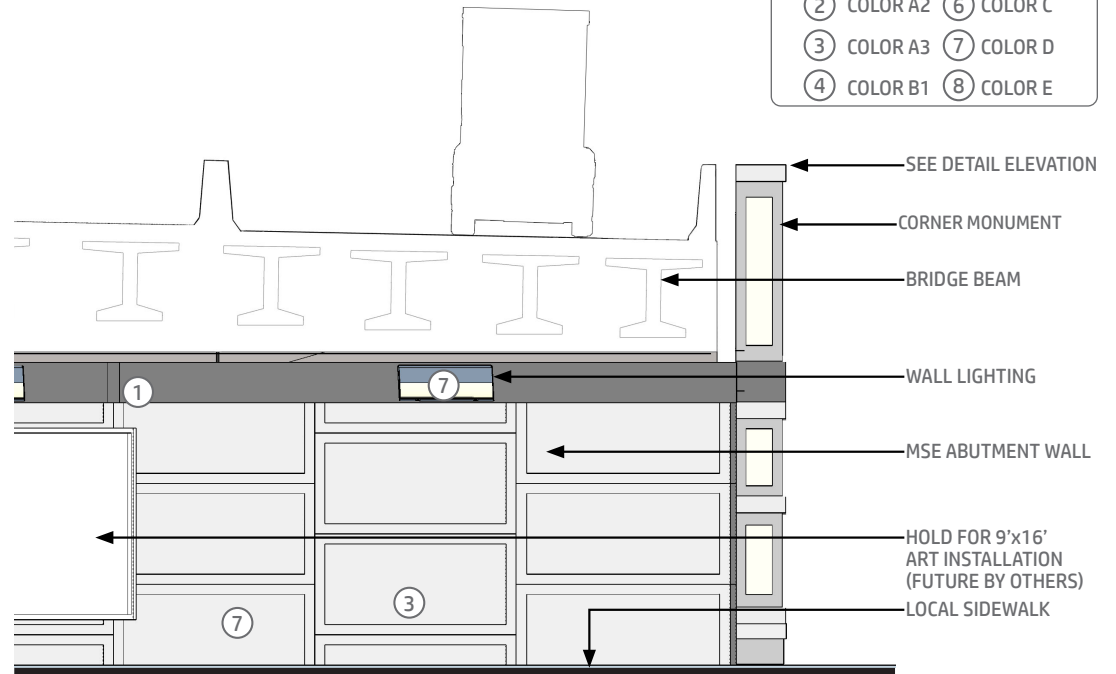
NOTE: Number of down-lighting and column lighting shall be determined in accordance with the technical provisions and project standards.

COLOR LEGEND: SEE COLOR SECTION

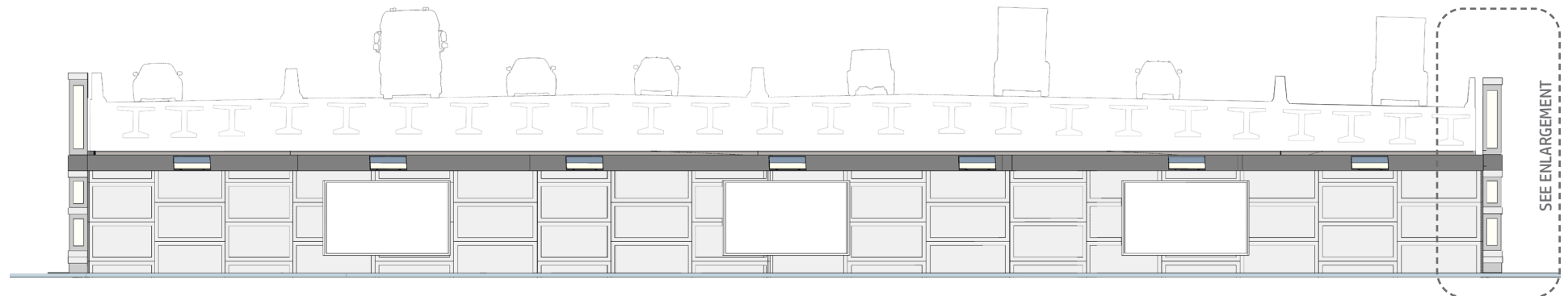
① COLOR A1	⑤ COLOR B2
② COLOR A2	⑥ COLOR C
③ COLOR A3	⑦ COLOR D
④ COLOR B1	⑧ COLOR E



END ELEVATION (TYPICAL)



CROSS SECTION ENLARGEMENT (TYPICAL)



CROSS SECTION ELEVATION (TYPICAL)

SCHEMATIC DETAILS

MINOR MONUMENT ABUTMENT

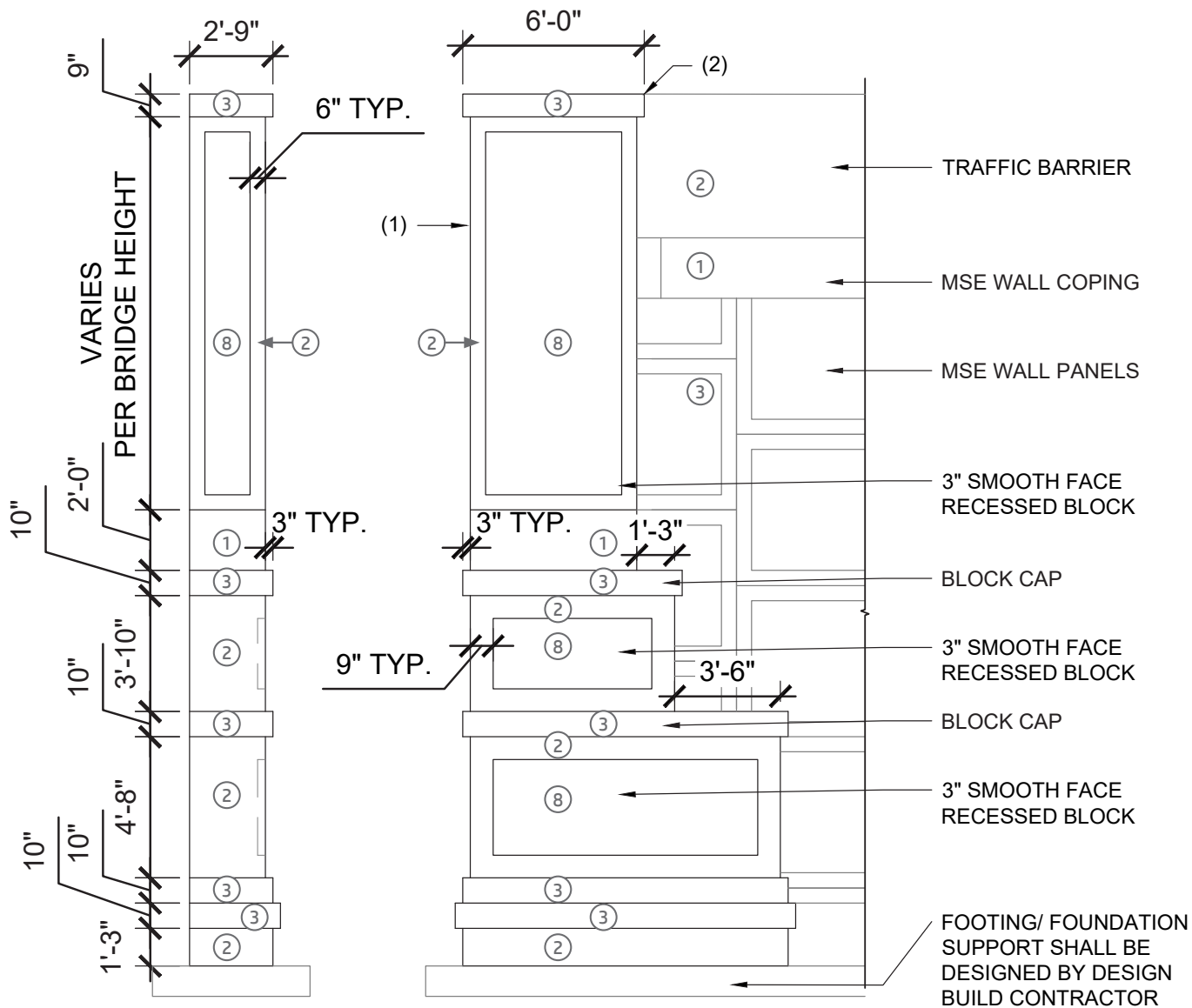
COLOR LEGEND: SEE COLOR SECTION

- ① COLOR A1 ⑤ COLOR B2
② COLOR A2 ⑥ COLOR C
③ COLOR A3 ⑦ COLOR D
④ COLOR B1 ⑧ COLOR E

LEGEND:

(1) MONUMENT FACE SHALL BE FLUSH WITH FRONT FACE OF MSE ABUTMENT WALL
PRECAST COPING
(2) CAP SHALL BE FLUSH WITH TRAFFIC BARRIER.

NOTE: STRUCTURAL CONCRETE AND REINFORCING DESIGN AND DETAILING REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE DESIGN-BUILD CONTRACTOR IN ACCORDANCE WITH THE TECHNICAL PROVISIONS AND PROJECT STANDARDS.



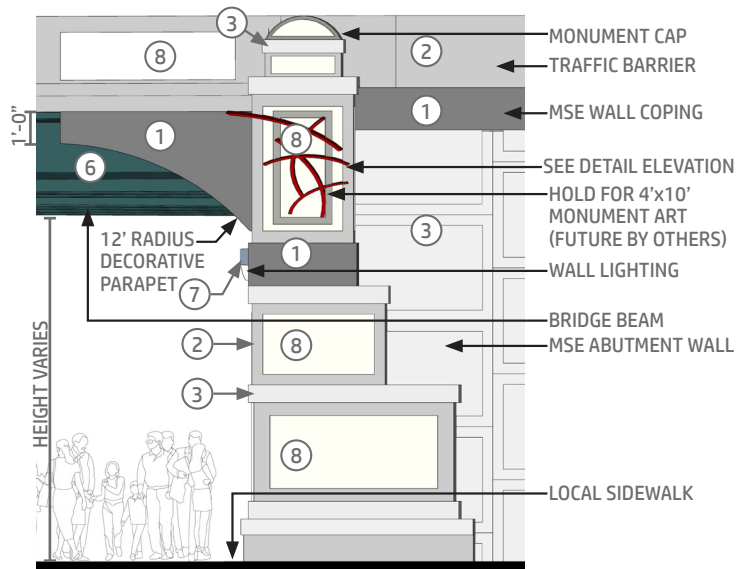
DETAIL ELEVATION (TYPICAL)

MAJOR MONUMENT ABUTMENT

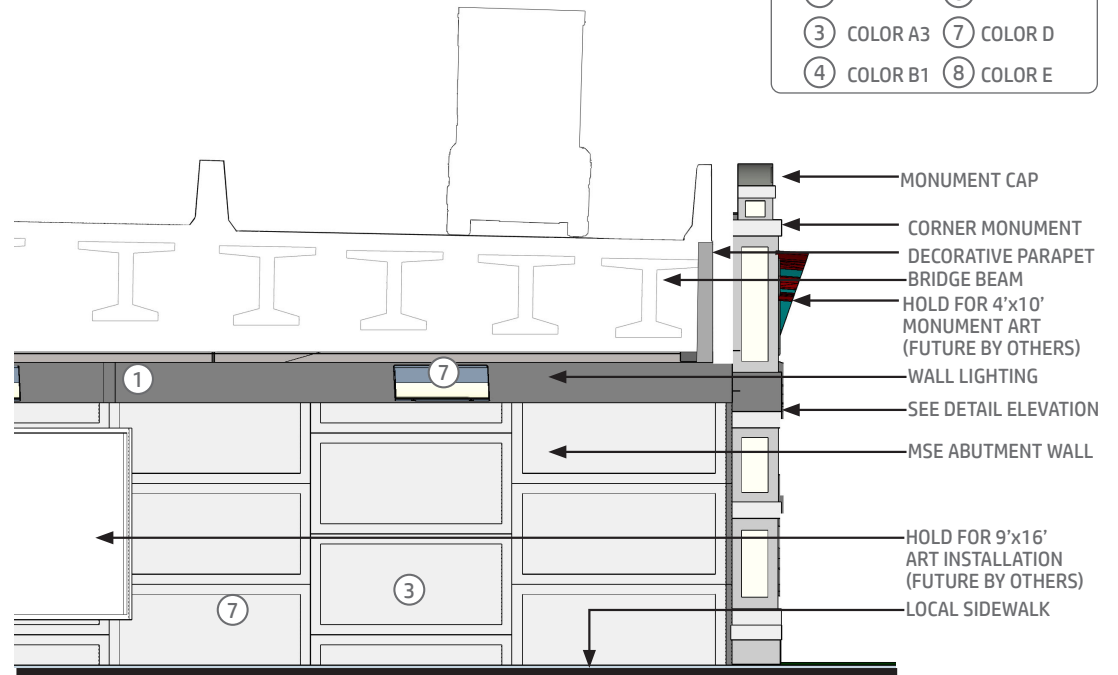
NOTE: Number of down-lighting and column lighting shall be determined in accordance with the technical provisions and project standards.

COLOR LEGEND: SEE COLOR SECTION

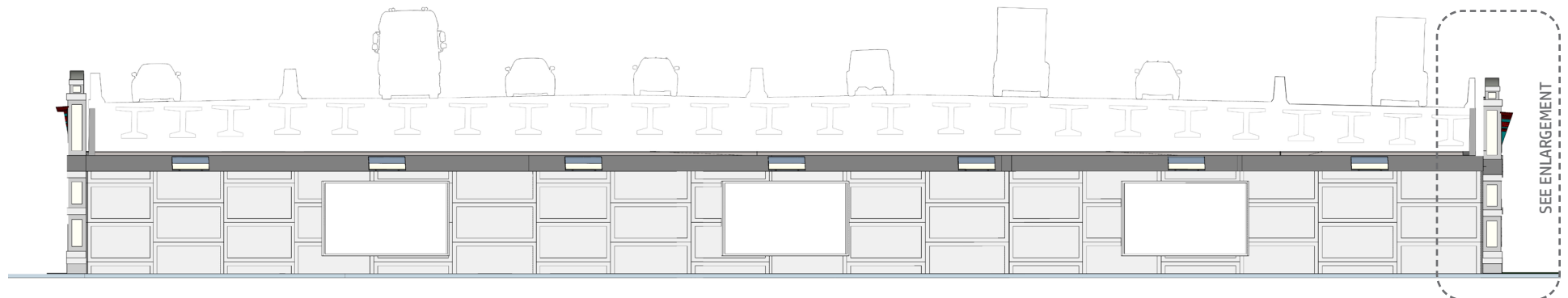
① COLOR A1	⑤ COLOR B2
② COLOR A2	⑥ COLOR C
③ COLOR A3	⑦ COLOR D
④ COLOR B1	⑧ COLOR E



END ELEVATION (TYPICAL)



CROSS SECTION ENLARGEMENT (TYPICAL)



CROSS SECTION ELEVATION (TYPICAL)

SCHEMATIC DETAILS

MAJOR MONUMENT ABUTMENT

COLOR LEGEND: SEE COLOR SECTION

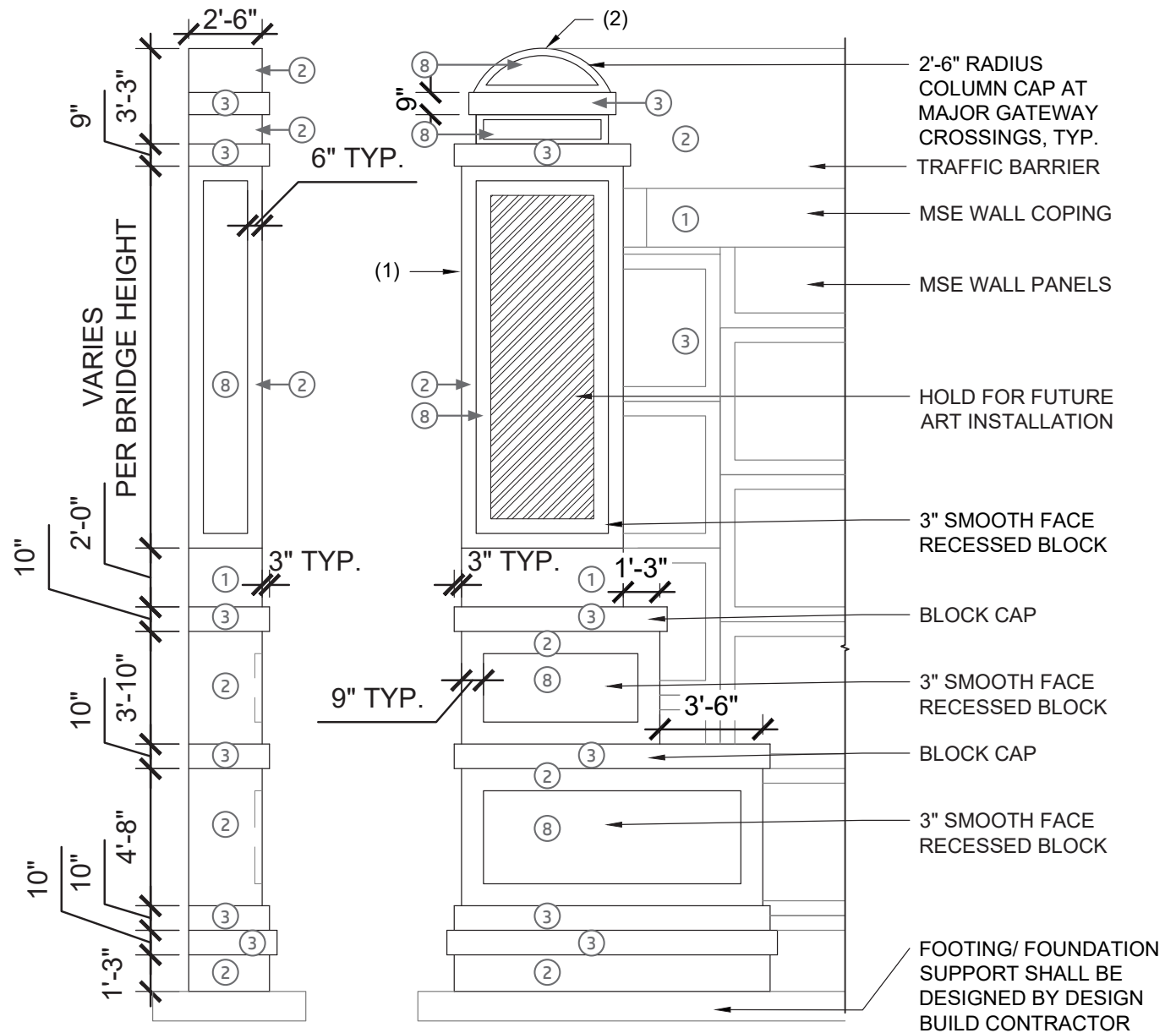
- | | |
|------------|------------|
| ① COLOR A1 | ⑤ COLOR B2 |
| ② COLOR A2 | ⑥ COLOR C |
| ③ COLOR A3 | ⑦ COLOR D |
| ④ COLOR B1 | ⑧ COLOR E |

LEGEND:

(1) MONUMENT FACE SHALL BE FLUSH WITH FRONT FACE OF MSE ABUTMENT WALL PRECAST COPING.

(2) CAP SHALL BE FLUSH WITH TRAFFIC BARRIER.

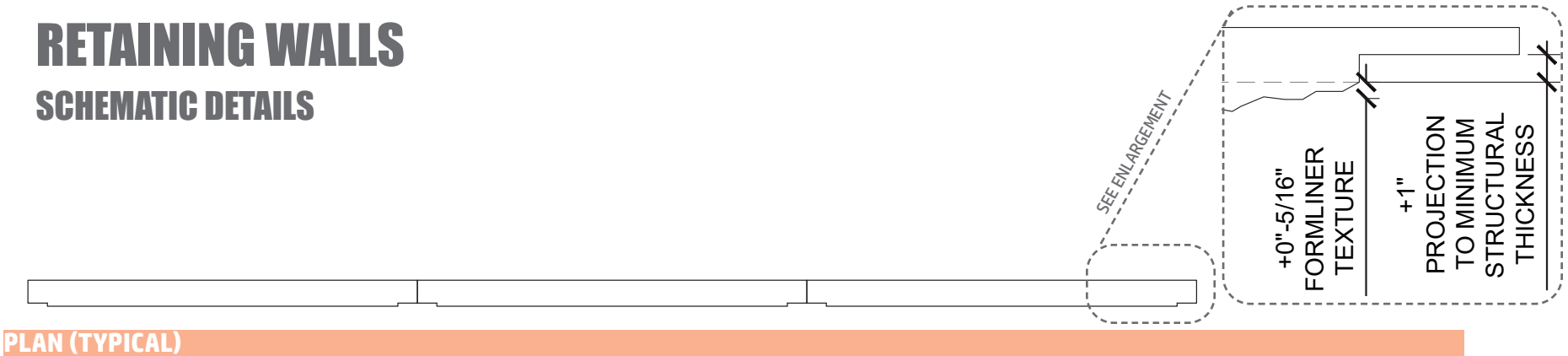
NOTE: STRUCTURAL CONCRETE AND REINFORCING DESIGN AND DETAILING REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE DESIGN-BUILD CONTRACTOR IN ACCORDANCE WITH THE TECHNICAL PROVISIONS AND PROJECT STANDARDS.



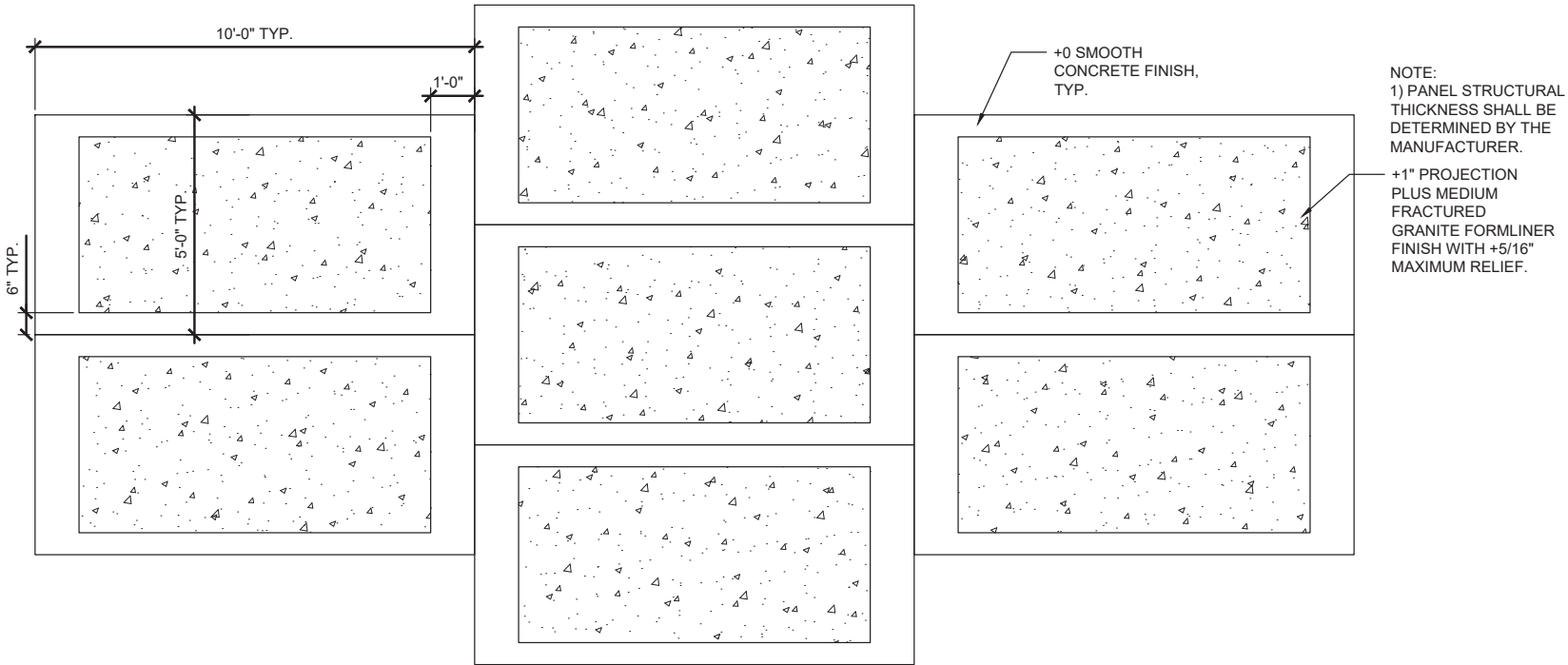
DETAIL ELEVATION (TYPICAL)

RETAINING WALLS

SCHEMATIC DETAILS



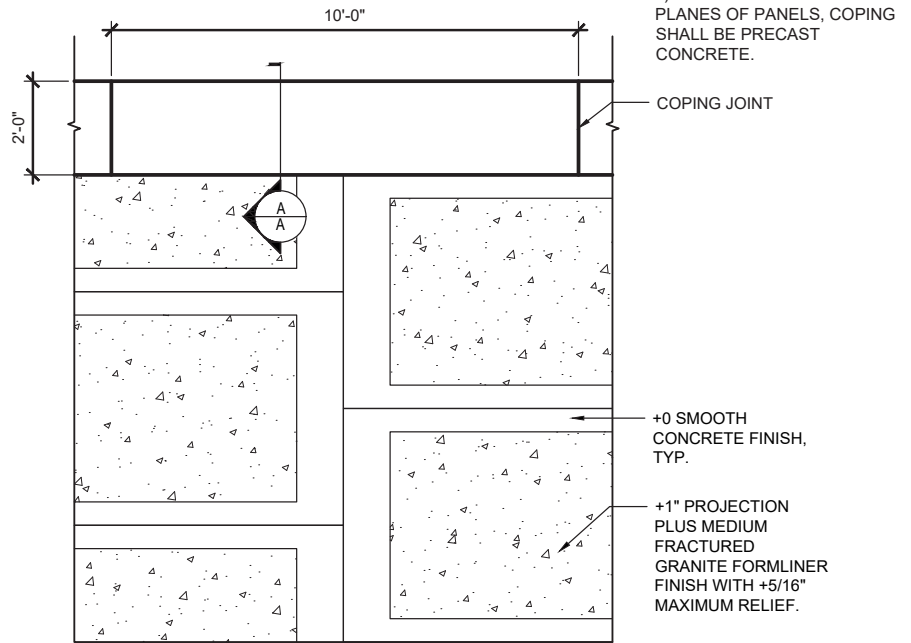
PLAN (TYPICAL)



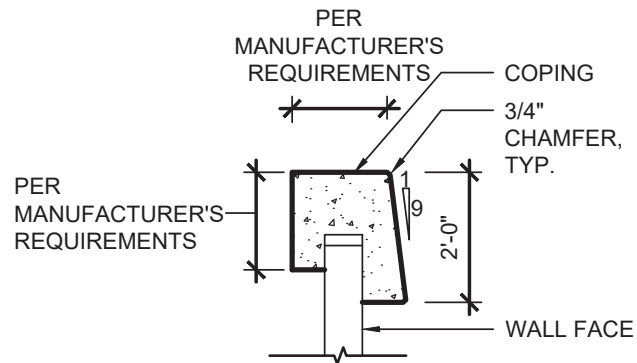
ELEVATION (TYPICAL)

RETAINING WALLS

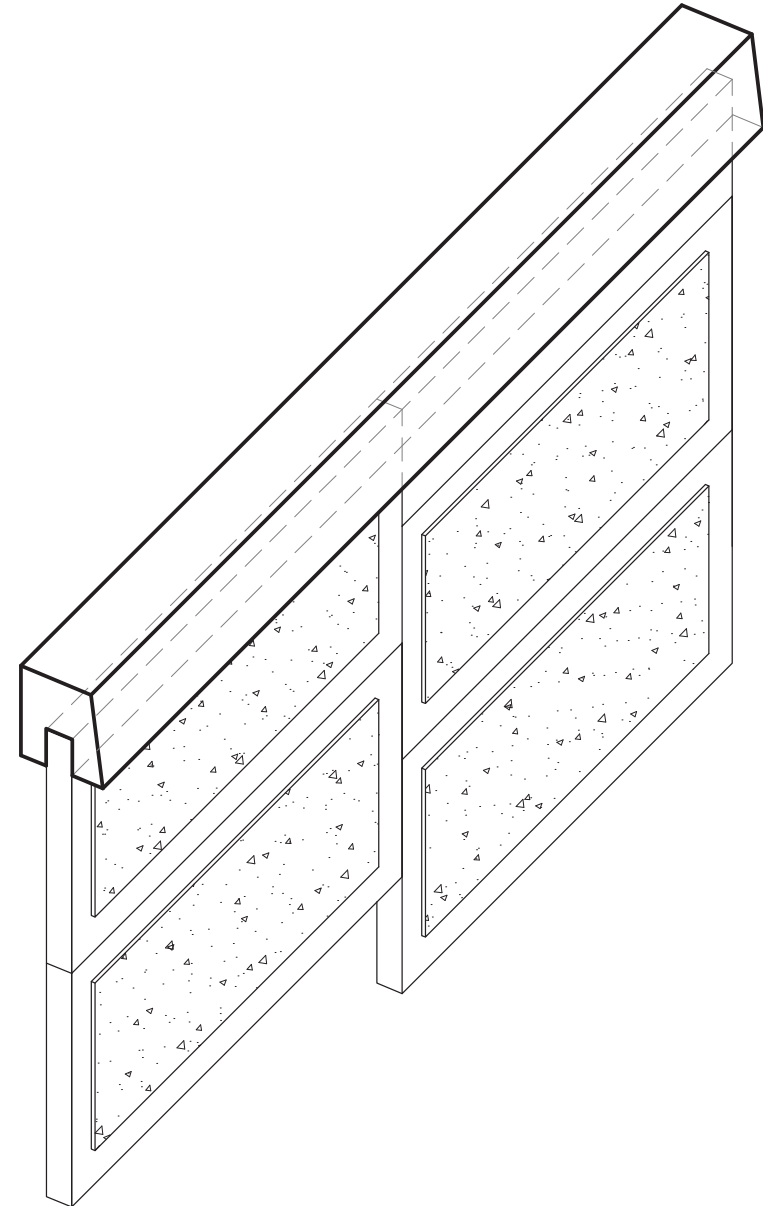
SCHEMATIC DETAILS



ELEVATION COPING WITH PANEL(TYPICAL)

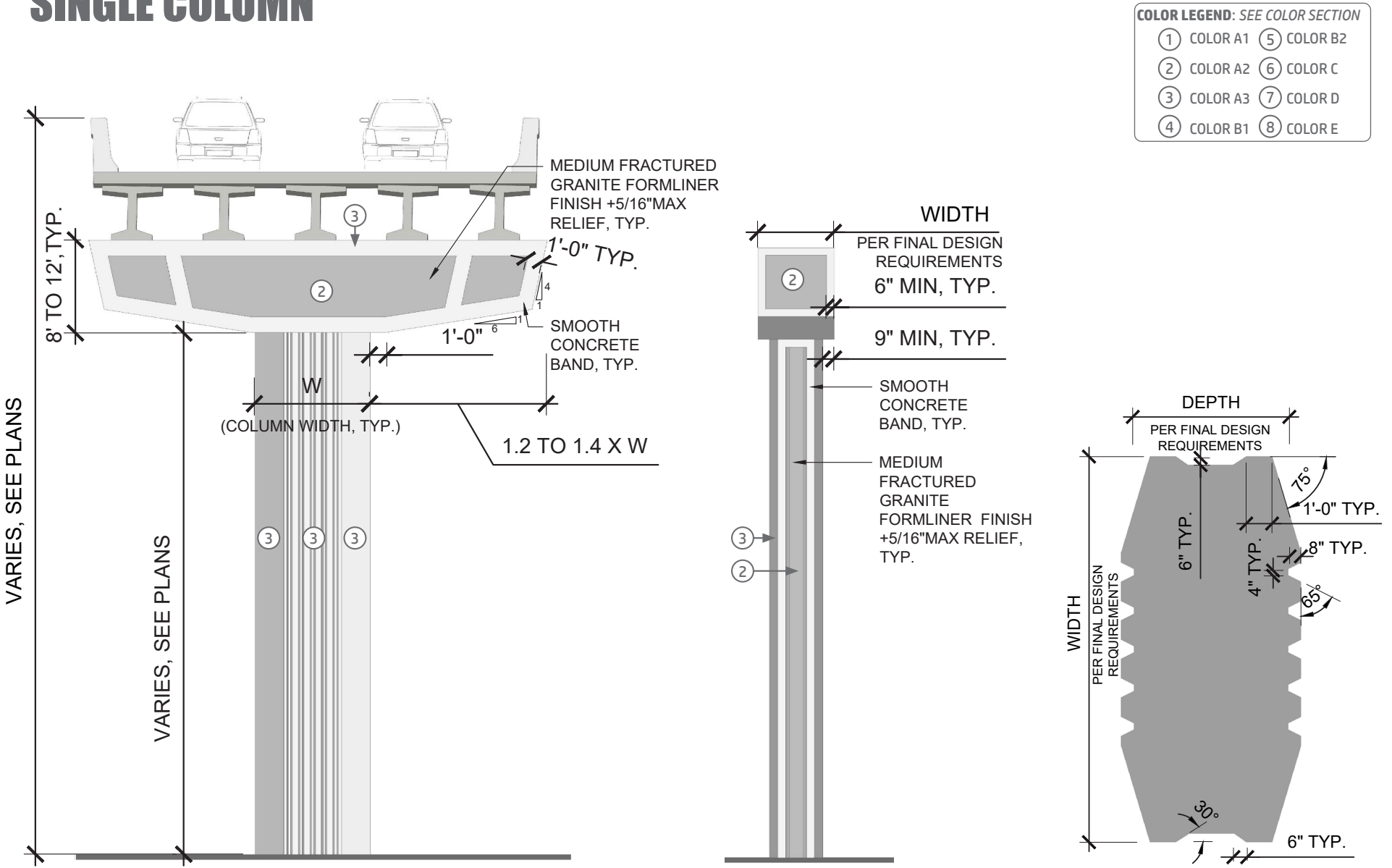


SECTION A- COPING (TYPICAL)



ISOMETRIC-COPING WITH PANEL (TYPICAL)

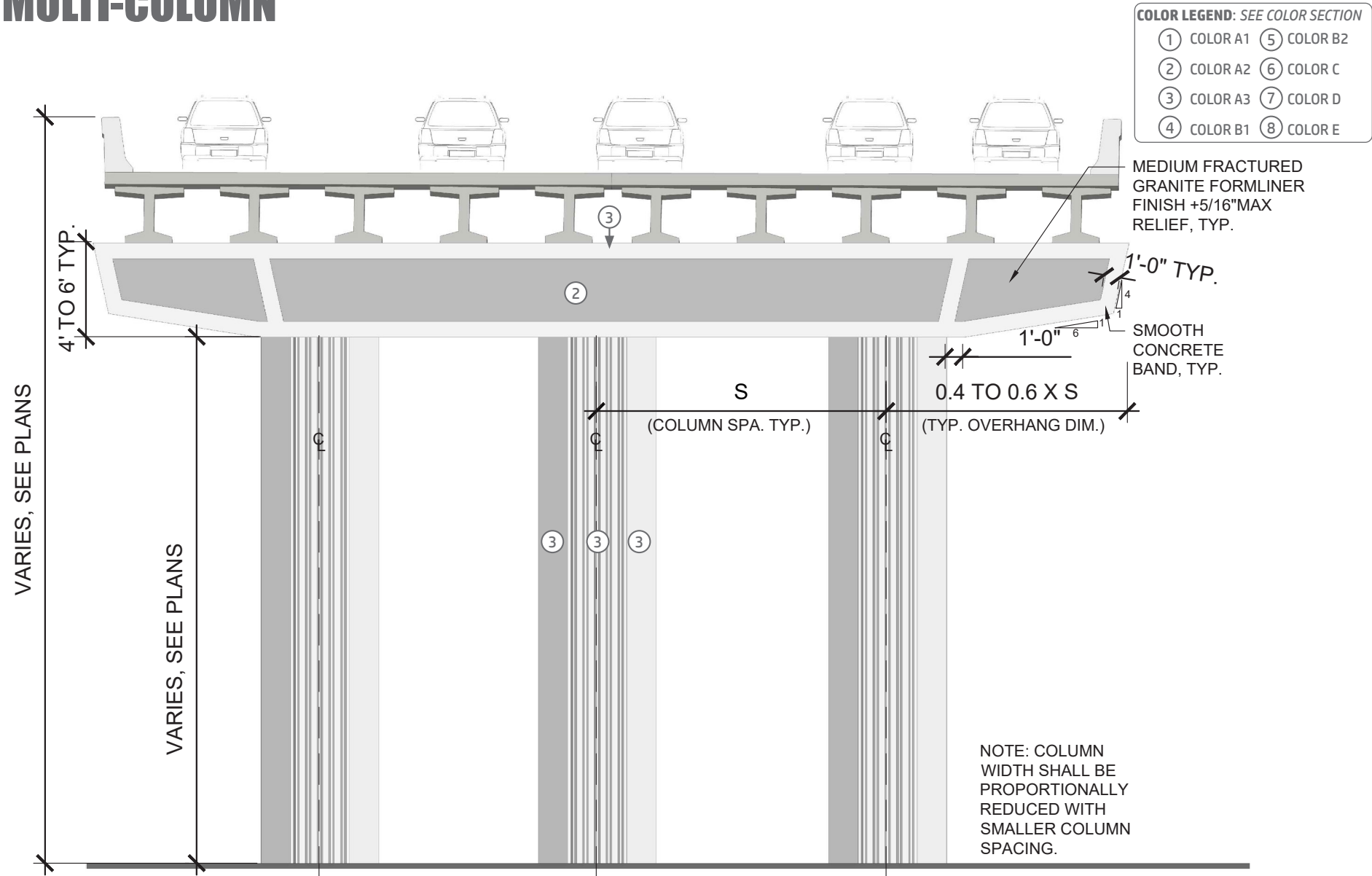
SINGLE COLUMN



FRONT & SIDE ELEVATION MAXIMUM HEIGHT (TYPICAL)

COLUMN CROSS SECTION (TYPICAL)

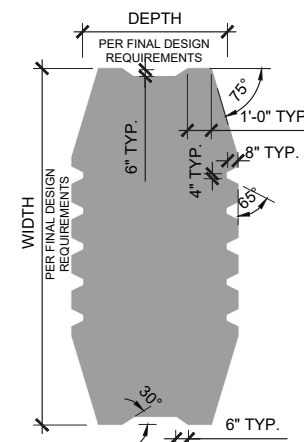
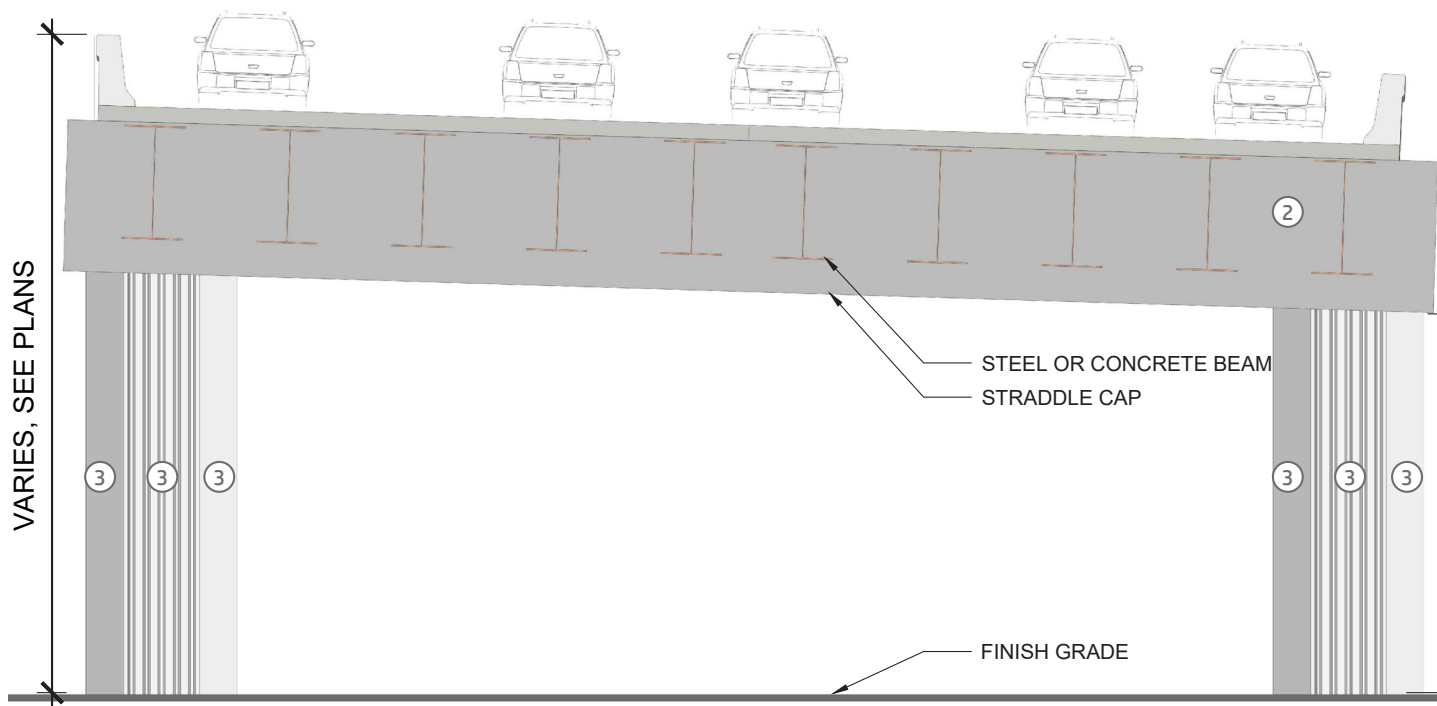
MULTI-COLUMN



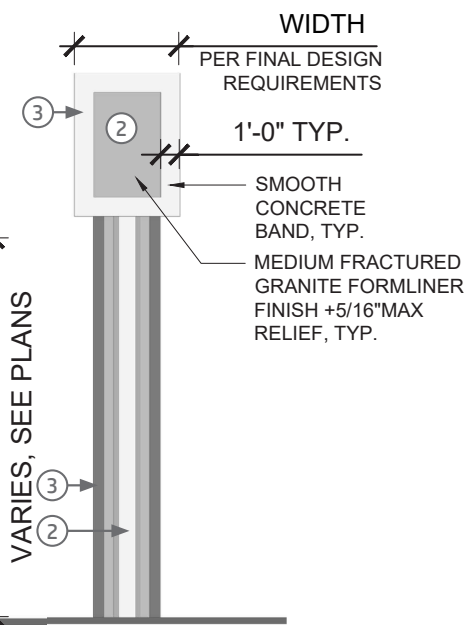
FRONT ELEVATION (TYPICAL)

COLOR LEGEND: SEE COLOR SECTION

- ① COLOR A1 ⑤ COLOR B2
② COLOR A2 ⑥ COLOR C
③ COLOR A3 ⑦ COLOR D
④ COLOR B1 ⑧ COLOR E



COLUMN CROSS SECTION (TYPICAL)



VARIATION 1: FRONT & SIDE ELEVATION (TYPICAL)

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 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

MAJOR GATEWAY SURFACING SCHEMATIC DETAILS

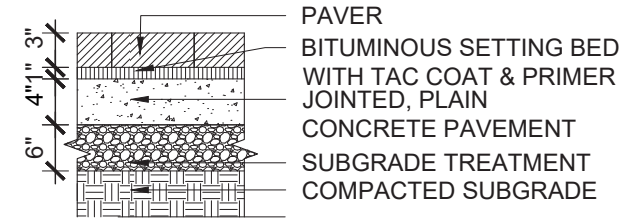
Major Gateway Pedestrian Surfaces

In addition to the Roadway Surfaces and the Minor Gateway and Standard Pedestrian Surfaces, Major Gateway Pedestrian Surface areas utilize both concrete and specialty pavement treatments to highlight and emphasize the pedestrian environment.

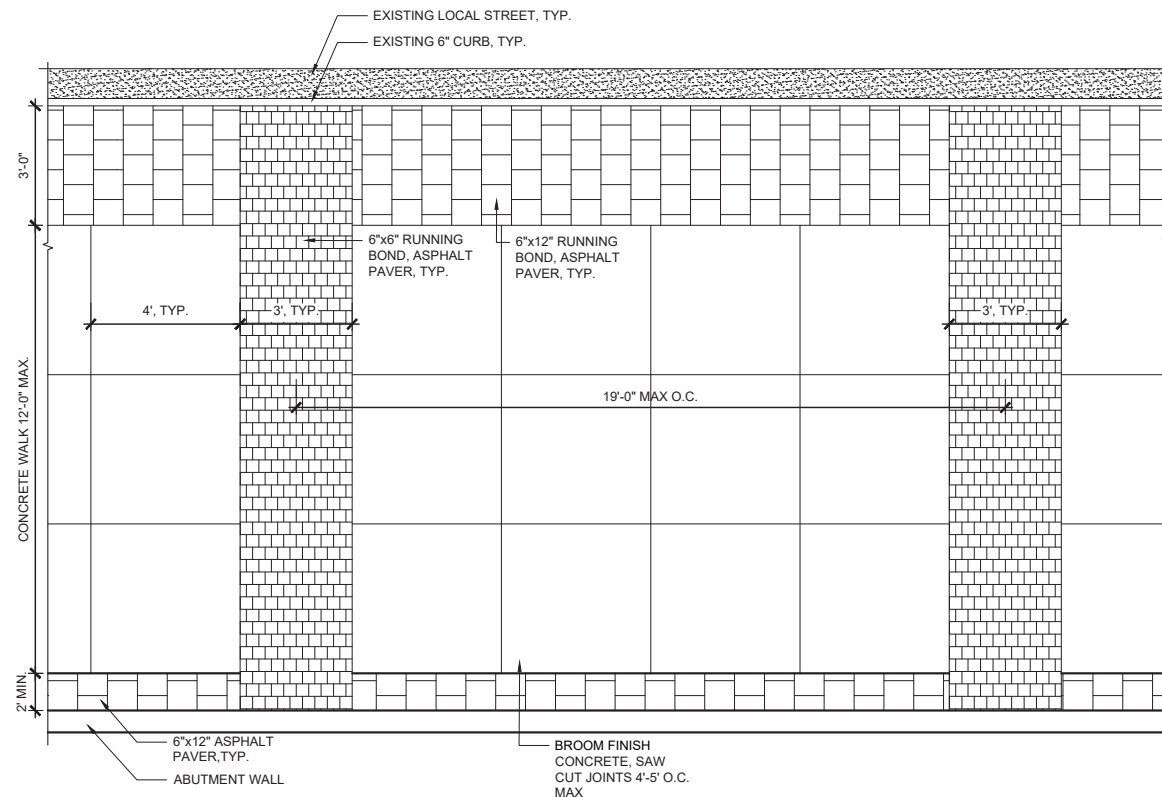
Major Gateway treatments occur at New York Street, Central Avenue, College Avenue, Alabama Street, 10th Street, Commerce Avenue, Michigan Street, and Washington Street.

Major Gateway Pedestrian Surfaces: Recommended Manufacturers

- Hanover Architectural Products
- Belgard Pavers & Hardscapes
- Or Approved Equal



SURFACING SECTION VIEW (TYPICAL)



SURFACING PLAN VIEW (TYPICAL)

LIGHTING

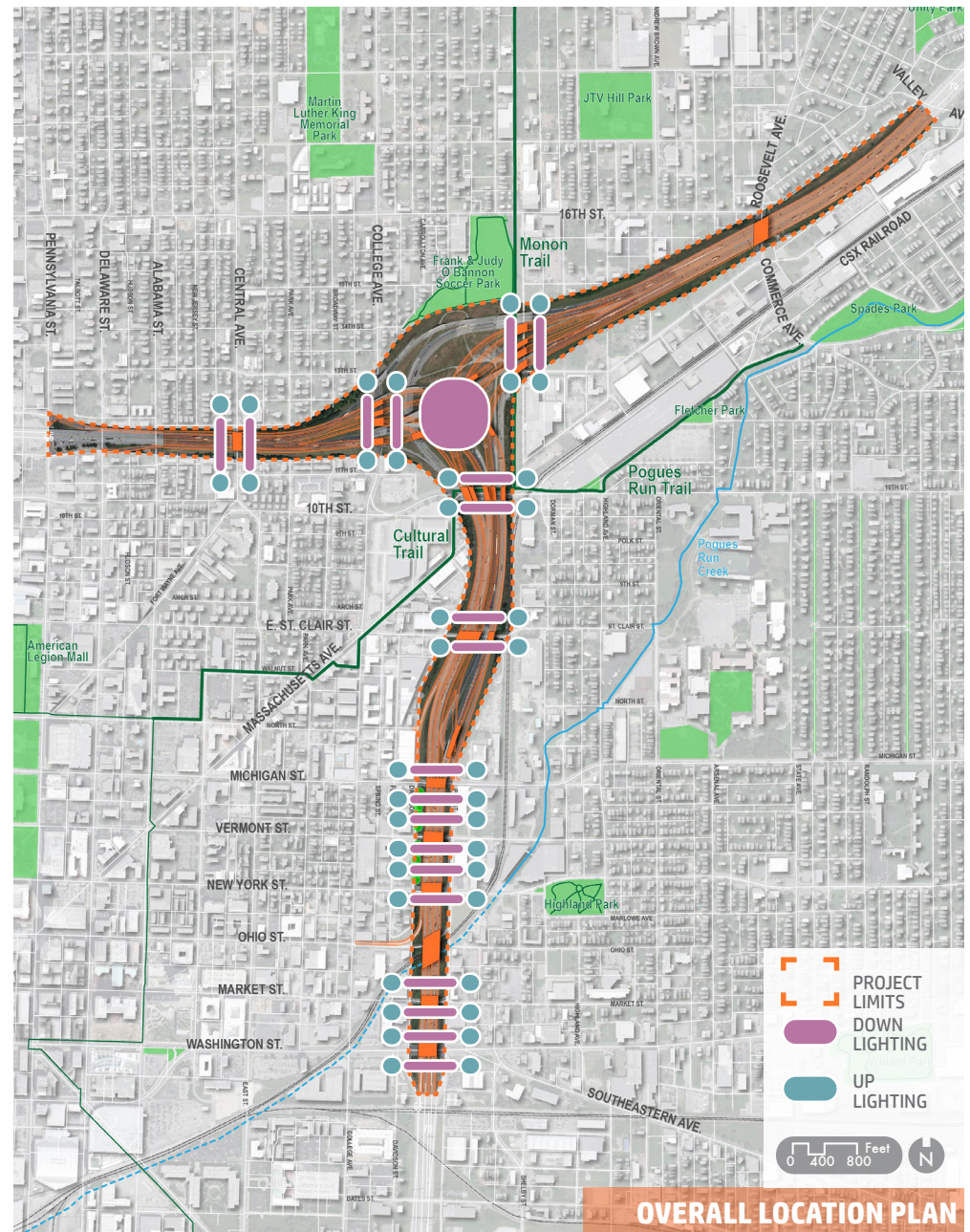
Design Summary

The recommended lighting types include two distinct treatment options that respond to the needs of vehicles, pedestrians, bicyclists and adjacent property owners. These two lighting types shall include:

1. Down Lighting
2. Up Lighting

Each are further discussed on the following pages.

NOTE: Down Lighting in underpass must meet pedestrian lighting standards.



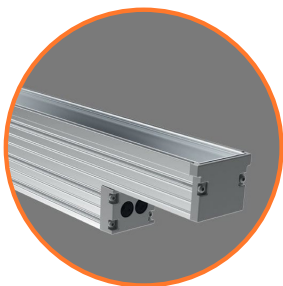


DOWN LIGHTING

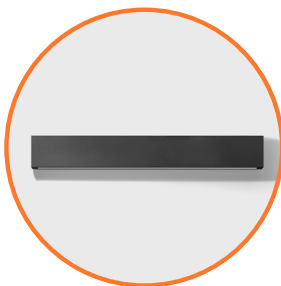
Wall Mounted:

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



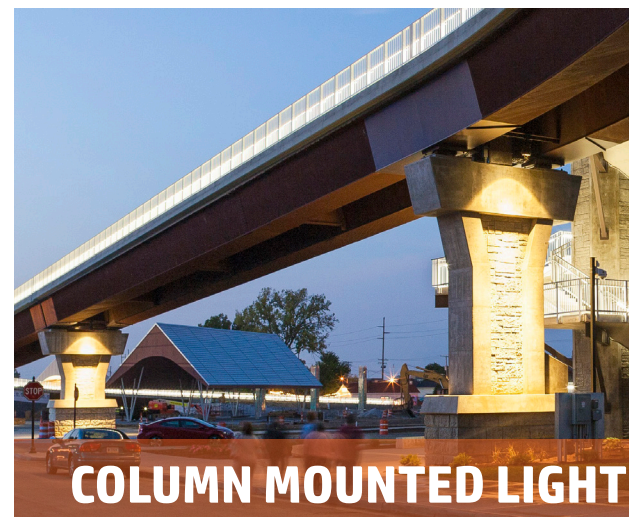
**BEGA | LED
WALL WASHER**



**BEGA | LED
COMPACT FLOOD**



SELUX | AVANZA



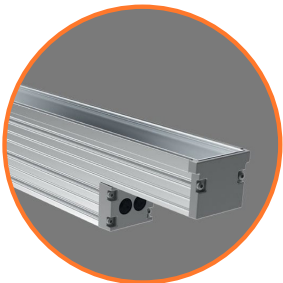


UP LIGHTING

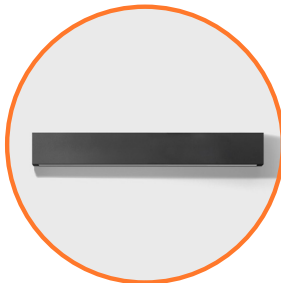
BAR LIGHT:

Bar style up lighting shall be recess mounted to monument for tamper resistance and achieve uniform aesthetic lighting wash across entire monument. Mock-up shall be required for approval.

APPROPRIATE FIXTURES



**TARGETTI | JEDI
COMPACT IP67 INTEGRAL**



**BEGA | LED
WALL WASHER**



**LED LINEAR | XOOLUM
IP67**

SPOT LIGHT:

Spot style up lighting shall be ground mounted in a concrete base and achieve focused aesthetic lighting wash at location of future art in upper third of monument. Mock-up shall be required for approval.

APPROPRIATE FIXTURES



TERON CIMMARON LED



HOLOPHANE PSLED



**BEGA | LED COMPACT
FLOOD**



MONUMENT UPLIGHTING

COLOR LEGEND: SEE COLOR SECTION

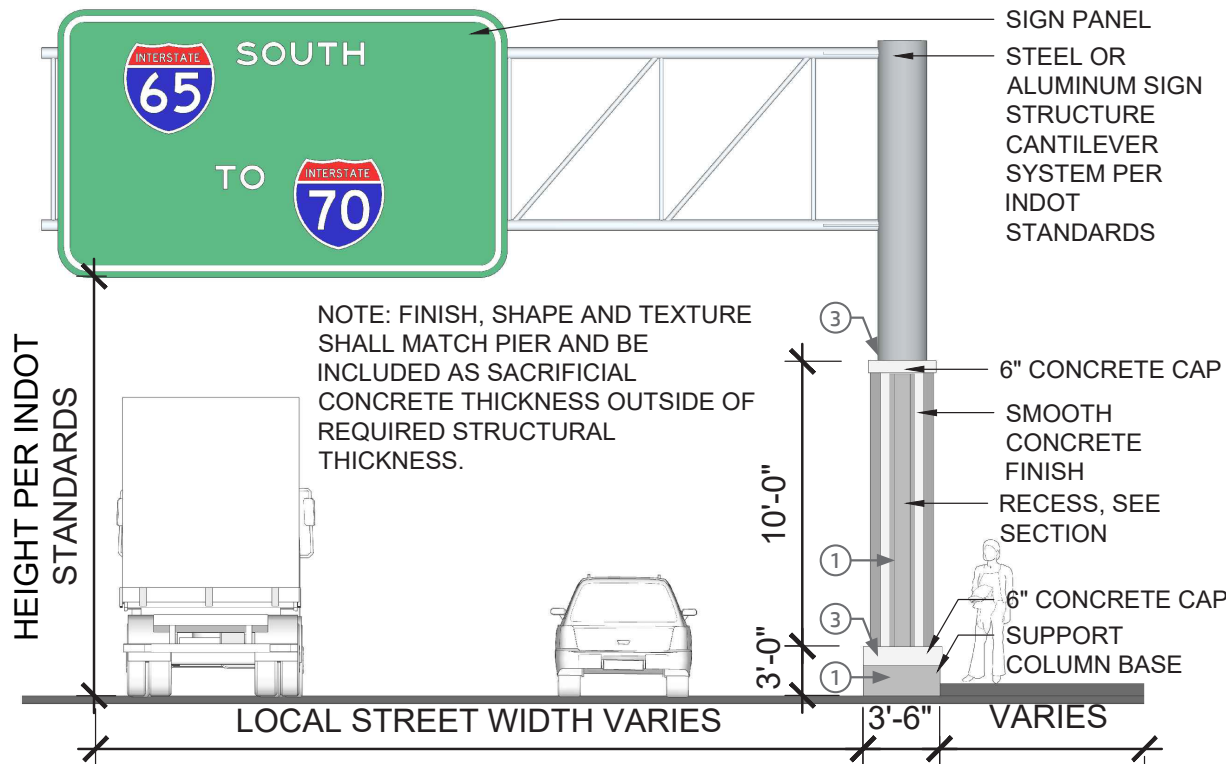
① COLOR A1	⑤ COLOR B2
② COLOR A2	⑥ COLOR C
③ COLOR A3	⑦ COLOR D
④ COLOR B1	⑧ COLOR E



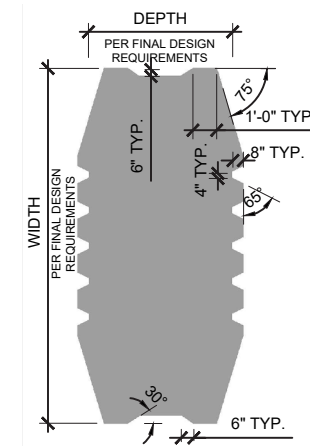
OVERHEAD CANTILEVER SIGN ON LOCAL STREETS

COLOR LEGEND: SEE COLOR SECTION

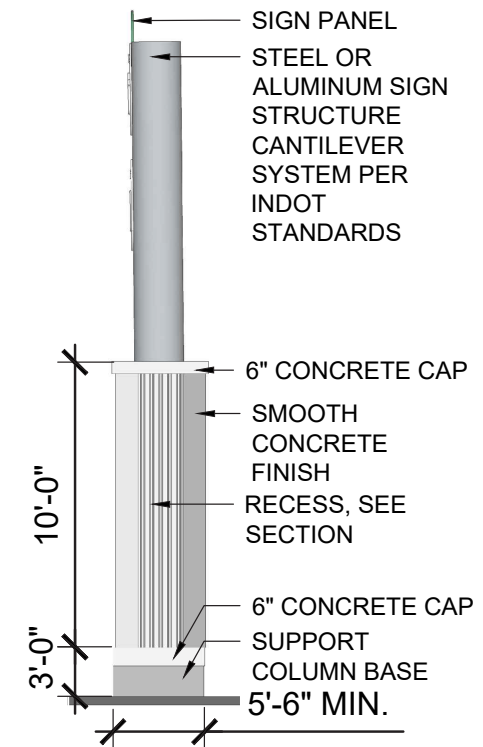
- | | |
|------------|------------|
| ① COLOR A1 | ⑤ COLOR B2 |
| ② COLOR A2 | ⑥ COLOR C |
| ③ COLOR A3 | ⑦ COLOR D |
| ④ COLOR B1 | ⑧ COLOR E |



FRONT ELEVATION (TYPICAL)



COLUMN CROSS SECTION, TYP.

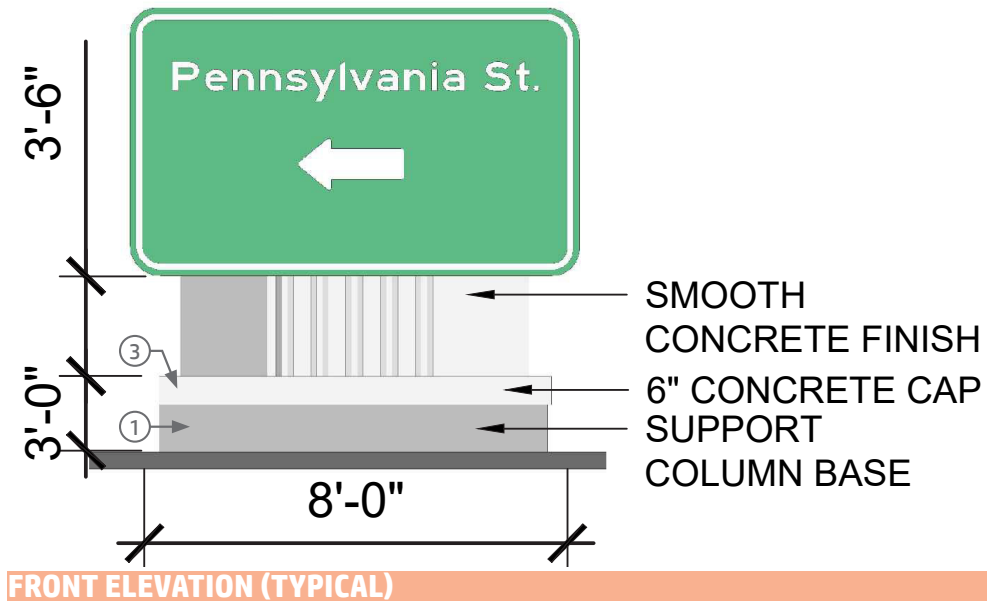


SIDE ELEVATION (TYPICAL)

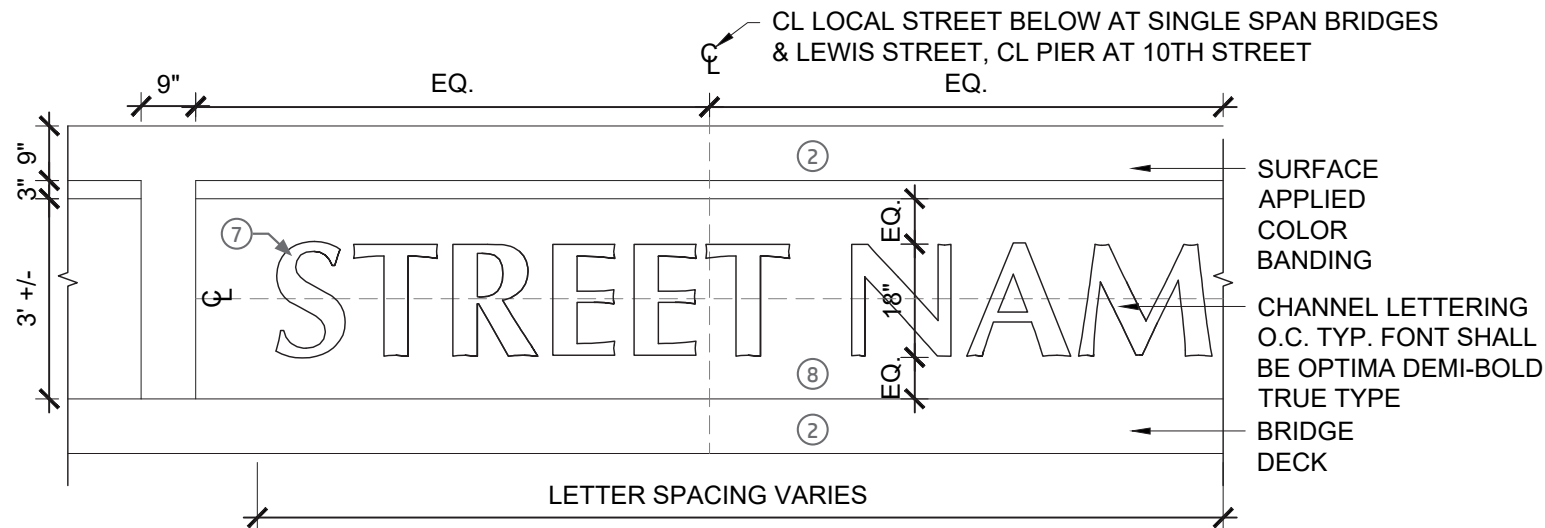
GROUND- MOUNTED PANEL SIGN AT LOCAL STREETS

COLOR LEGEND: SEE COLOR SECTION

- | | |
|------------|------------|
| ① COLOR A1 | ⑤ COLOR B2 |
| ② COLOR A2 | ⑥ COLOR C |
| ③ COLOR A3 | ⑦ COLOR D |
| ④ COLOR B1 | ⑧ COLOR E |



TRAFFIC BARRIERS

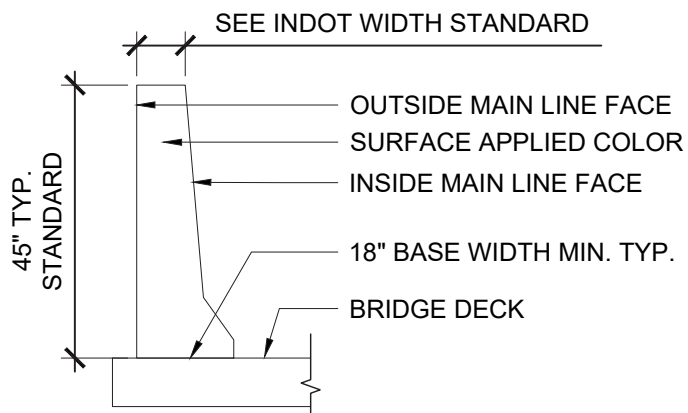


COLOR LEGEND: SEE COLOR SECTION

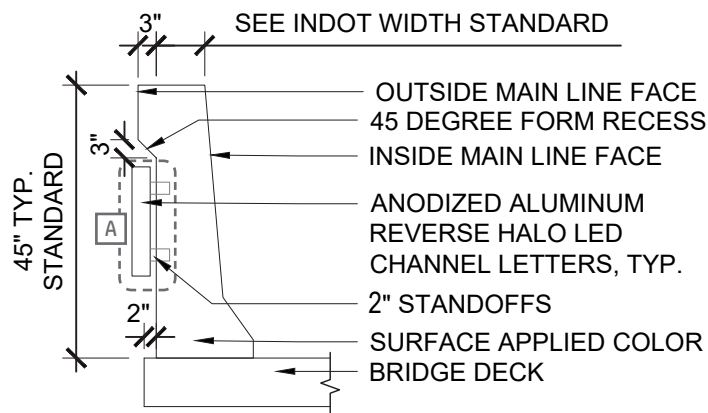
- | | |
|------------|------------|
| ① COLOR A1 | ⑤ COLOR B2 |
| ② COLOR A2 | ⑥ COLOR C |
| ③ COLOR A3 | ⑦ COLOR D |
| ④ COLOR B1 | ⑧ COLOR E |

NOTE: STRUCTURAL DESIGN OF LETTERING CONNECTION TO BARRIER SHALL BE THE RESPONSIBILITY OF THE DESIGN-BUILD CONTRACTOR IN ACCORDANCE WITH THE TECHNICAL PROVISIONS AND PROJECT STANDARDS.

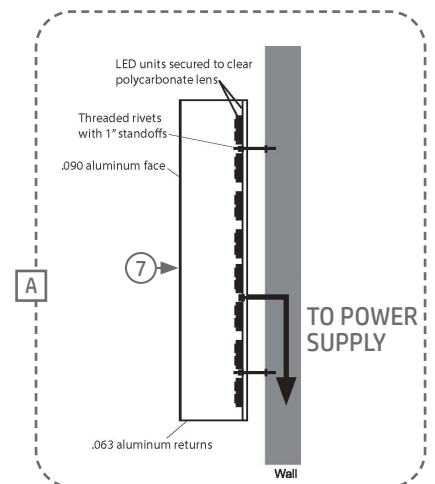
OUTSIDE FACE ELEVATION (TYPICAL)



STANDARD BARRIER CROSS SECTION (TYPICAL)



SIGN BARRIER CROSS SECTION (TYPICAL)

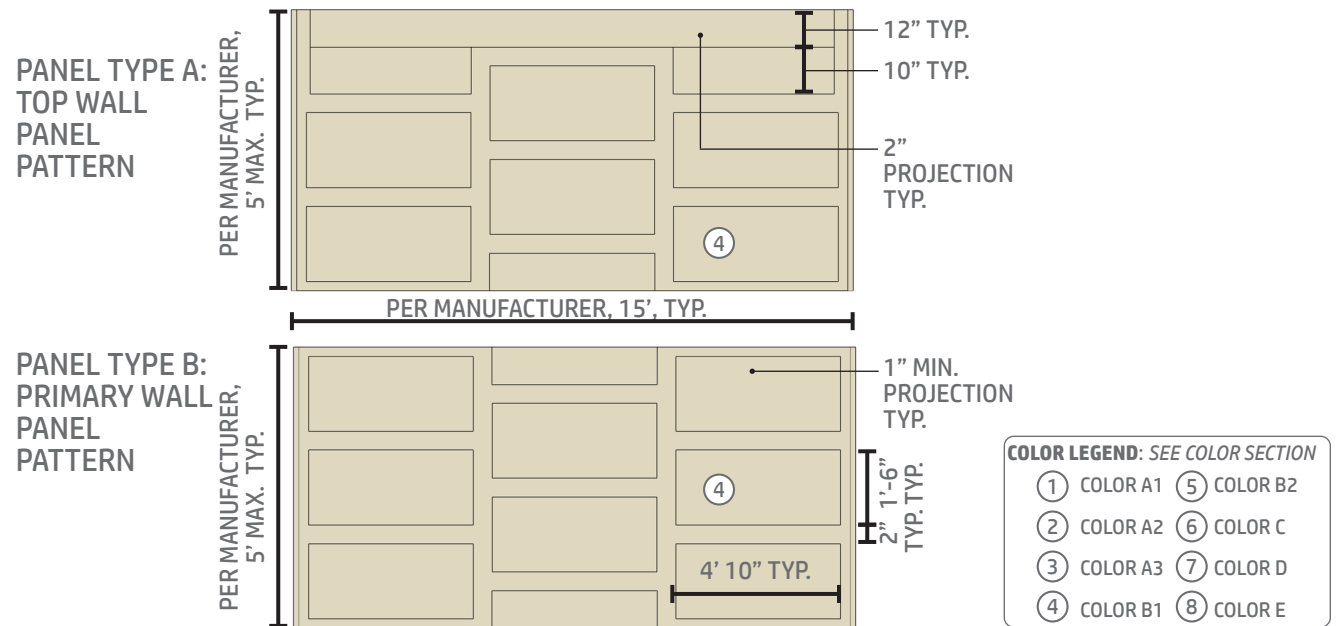


REVERSE HALO CHANNEL LETTER

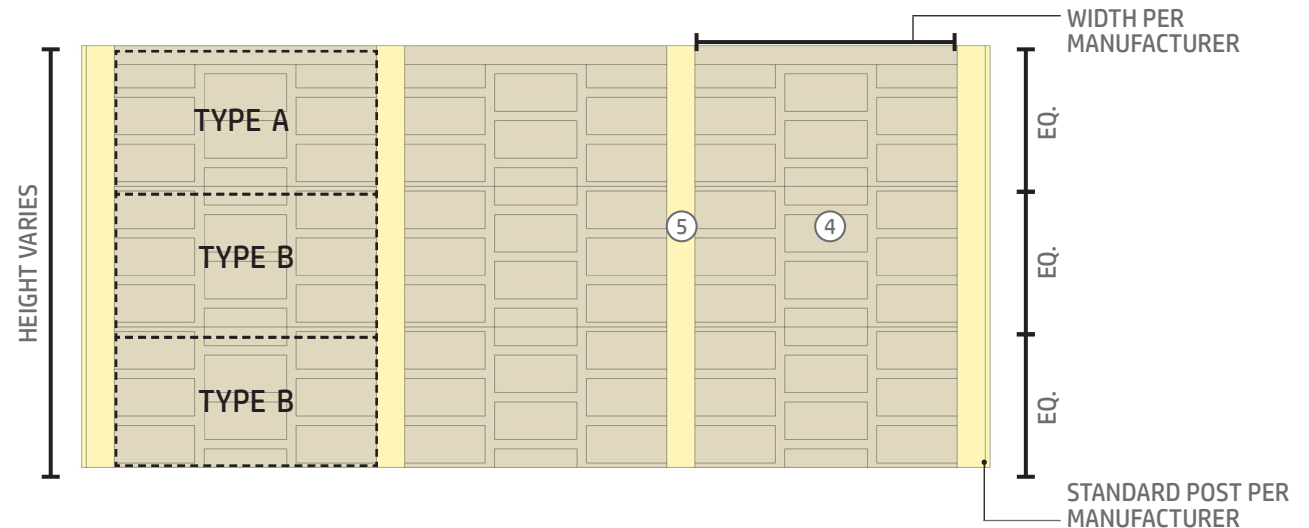
SOUND BARRIERS

Characteristics

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



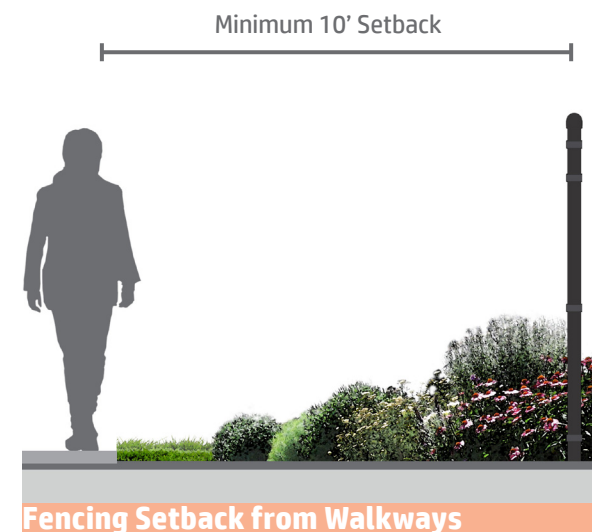
SOUND BARRIER PANEL TYPES (TYPICAL)



SOUND BARRIER FRONT ELEVATION (TYPICAL)

FENCING

Fencing shall be chain-link with black vinyl coating and meet height requirements between 4' and 6', with 6' fencing used adjacent to the Monon Trail.



BRIDGES OPENINGS

Overview:

With the reconstruction of the I-65/I-70 North Split interchange, the bridges that pass over local city streets will be replaced as part of this project. Thirteen downtown city streets are directly affected by the project. When the project is complete, all existing streets will still function as through streets with the interstate remaining elevated, bridging over the local streets.

The proposed design of the bridge opening infrastructure provides wider underpass openings, creating a safer and more inviting environment for accommodating pedestrians and vehicles.

Bridge Opening Types

Three bridge opening types were developed for local roadway connections. These bridge opening types shall be:

- 1. Major Gateway Bridge Openings:** These bridge openings signify the most visible and highly used connections under the interstate. They shall function as neighborhood gateways, arterial street enhancements, and access points to the interstate.
- 2. Minor Gateway Bridge Openings:** These bridge openings occur at collector and neighborhood streets and shall be visually similar to the Major Gateway Bridges.
- 3. Standard Bridge Openings:** These bridge openings are essentially the base build condition. These bridges are more utilitarian and shall occur at bridges within the interchange, interior bridges sandwiched between a set of Major or Minor Bridges, or other areas where there is little or no pedestrian activity.

The bridge opening types shall contain a basic level of design enhancements proposed as part of the project, including wider sidewalks to encourage pedestrian connectivity, bridge abutment walls to reduce sidewalk edge encampment and loitering, traffic barriers with place making and wayfinding elements, and enhanced underpass lighting and visibility. The structural bridge components shall be designed to highlight the engineering and materials of the bridge components, allowing the engineering design to add to the overall visual interest of the underpass. While not overly detailed, integrating this level of ornamentation at the bridge openings enhances the character and overall visual impact to the infrastructure.

With the exception of only a few locations, all bridge openings cross over a local roadway. In the instance where a bridge opening crosses over a shared use trail, rail line, or on-ramp, the bridge structure aesthetic enhancements shall be applied while the ground plane enhancements shall not be applied due to varying conditions.

MAJOR GATEWAY BRIDGES

Design Summary:

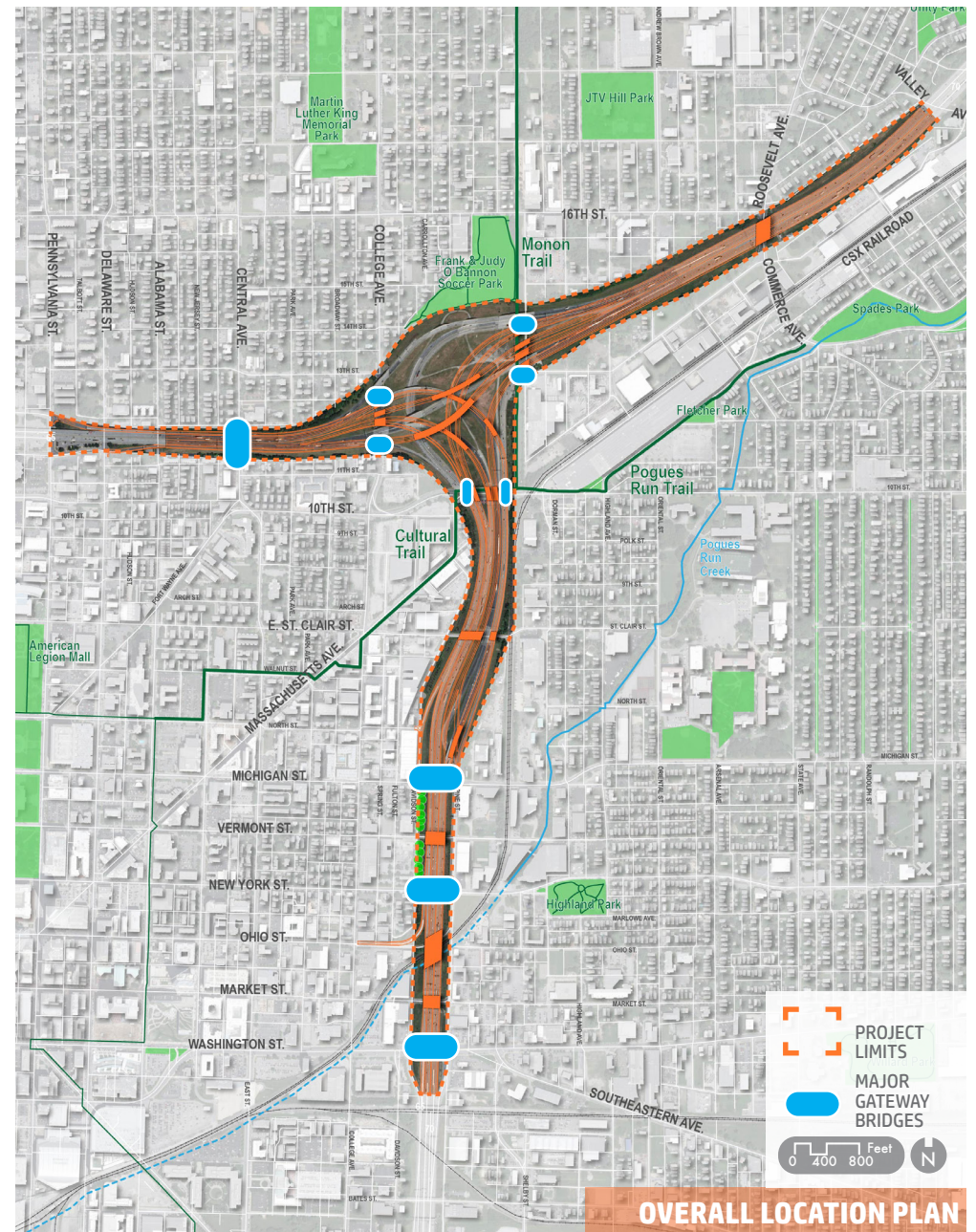
Major Gateway Bridges provide crossing of I-65/I-70 over collector and arterial streets. To accomplish this, the following summarize the general characteristics of the Major Gateway Bridges:

- Provide safe, efficient and accommodating pedestrian and bicycle facilities at the local street level to improve connectivity.
- Apply enhanced treatments to abutment corner monuments, and traffic barriers while maintaining visual consistency to the Minor and Standard Underpass Bridges.

Locations:

The major gateway bridges within the project shall be at the following locations, as illustrated on the corridor map:

- 10th Street (double span)
- Central Avenue (single span)
- College Avenue (single span)
- Lewis Street/ Monon Trail (double span)
- New York Street (Single Span)
- Michigan Street (single span)
- Washington Street (single span)



OVERALL LOCATION PLAN

MAJOR GATEWAY BRIDGES

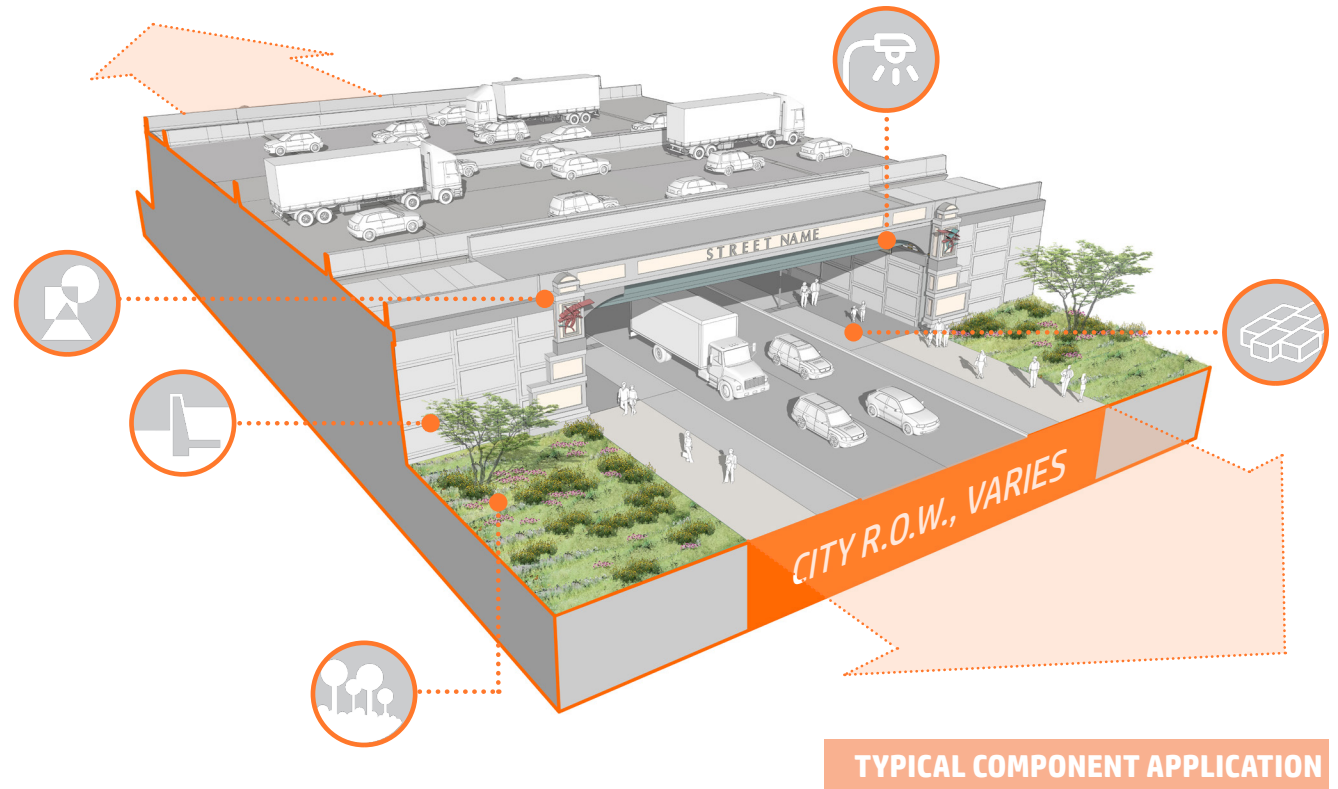
Application Summary:

This bridge type is influenced and inspired by local landmarks, civic identity and historic forms within the context of downtown and surrounding neighborhoods' architecture. The Major Gateway Bridge design builds upon the decorative and detailed character utilizing texture and shapes found in the surrounding context that celebrate the capitol city. It provides an opportunity for the integration of future public art within the public realm.

COMPONENT USE:

Design enhancements for Major Gateway Bridges shall include the following:

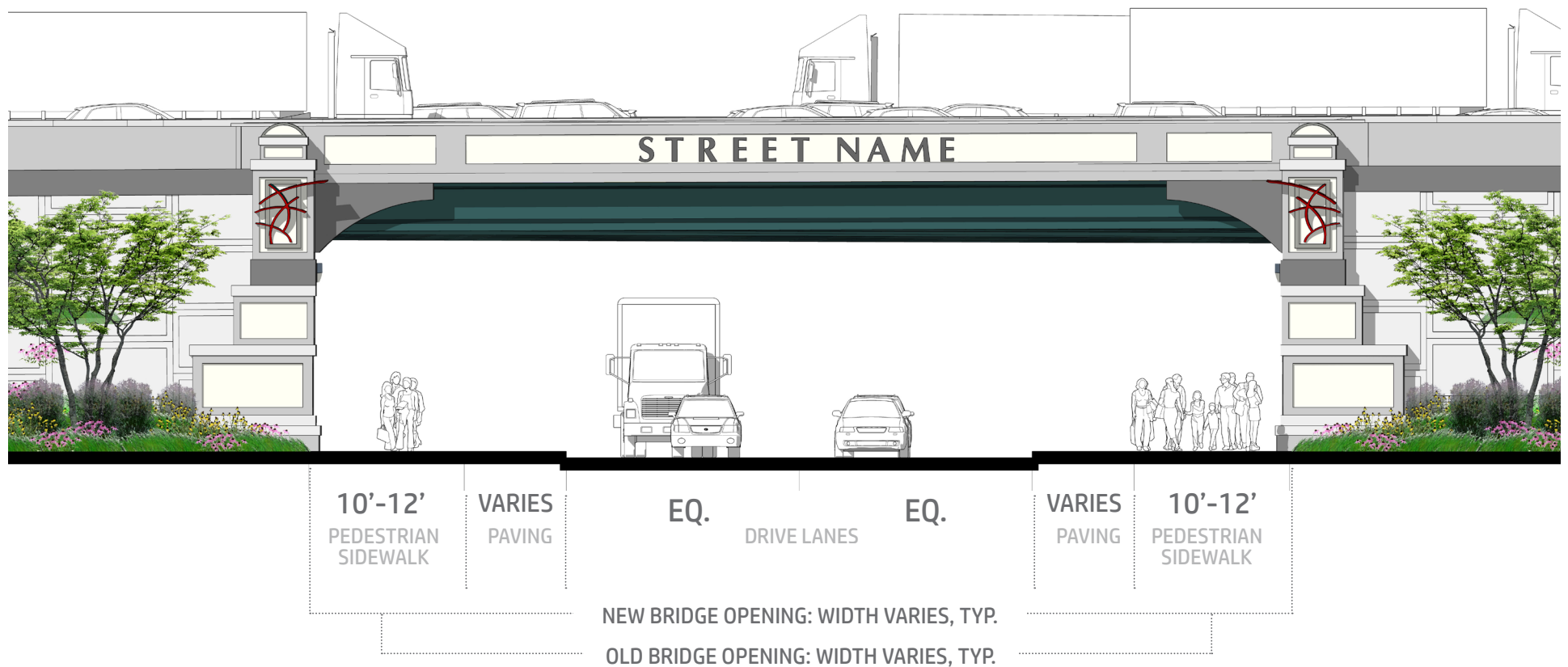
- Abutment Walls
- Lighting
- Surfacing
- Landscape
- Public Art Spaces



MAJOR GATEWAY BRIDGE APPLICATION SINGLE SPAN

NOTES:

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

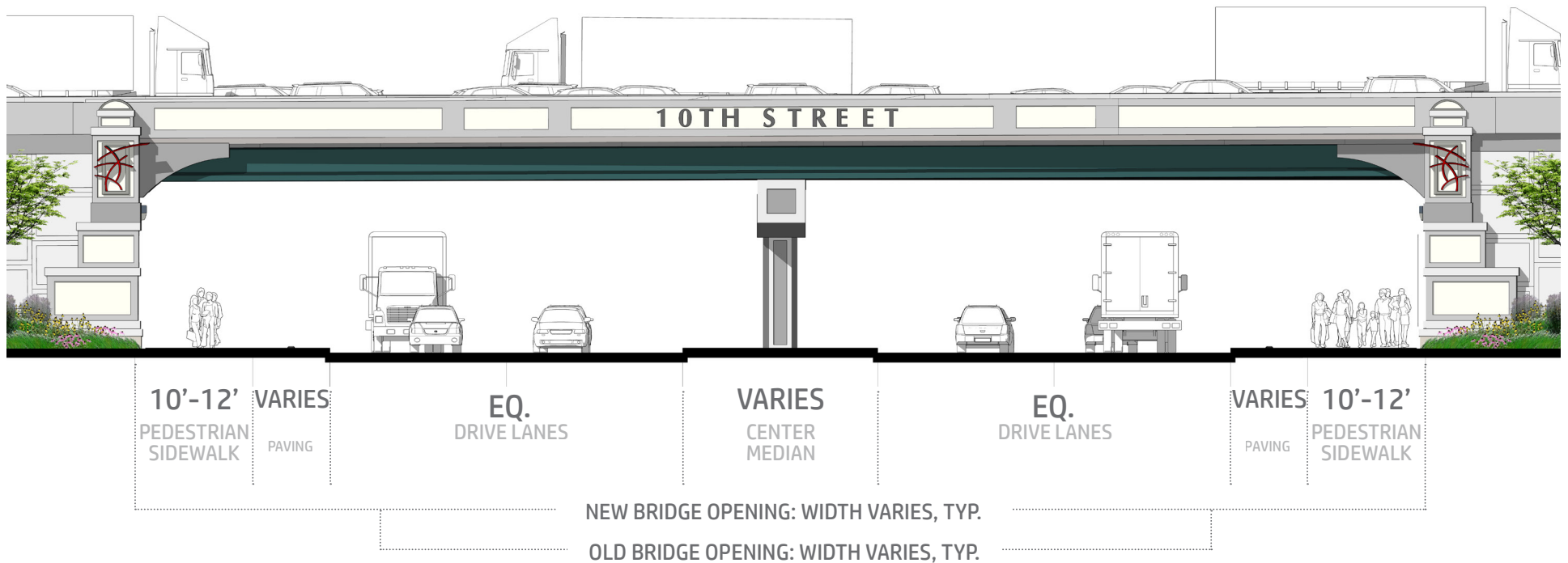


TYPICAL MAJOR GATEWAY BRIDGE ELEVATION

MAJOR GATEWAY BRIDGE APPLICATION DOUBLE SPAN, TYPICAL

NOTES:

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

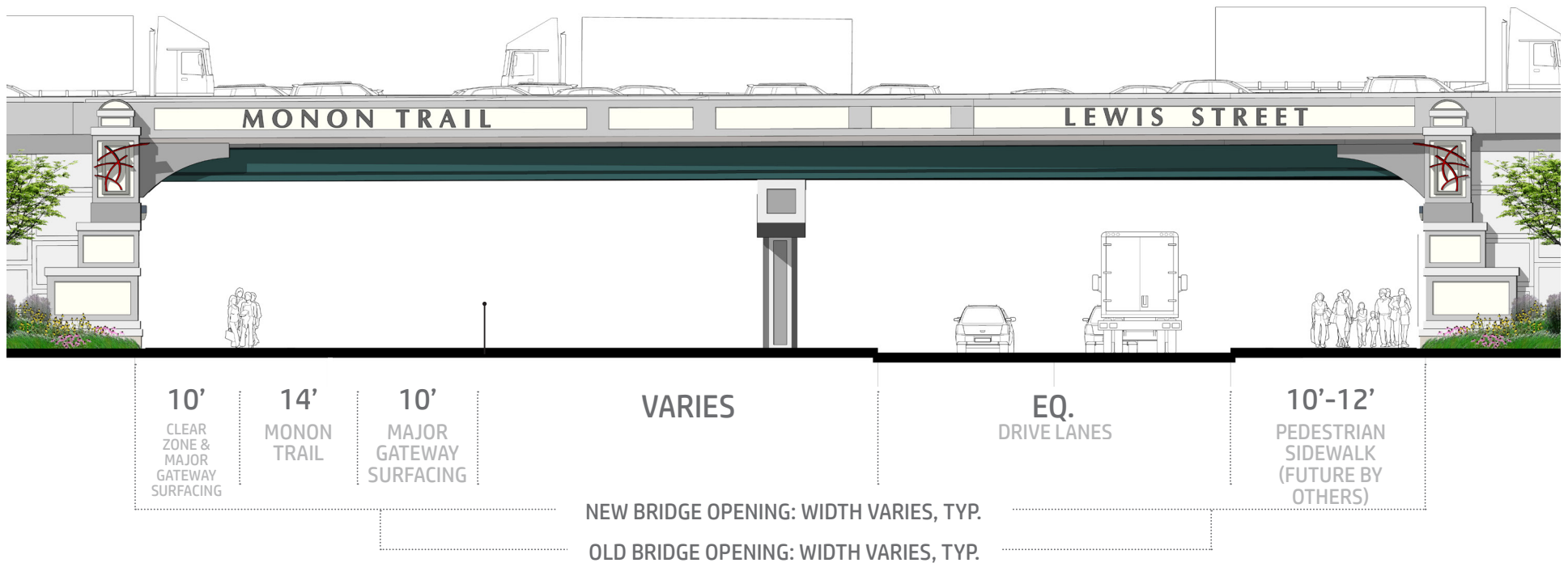


TYPICAL MAJOR GATEWAY BRIDGE ELEVATION

MAJOR GATEWAY BRIDGE APPLICATION DOUBLE SPAN AT MONON & LEWIS STREET

NOTES:

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



TYPICAL MAJOR GATEWAY BRIDGE ELEVATION



MINOR GATEWAY BRIDGES

Design Summary:

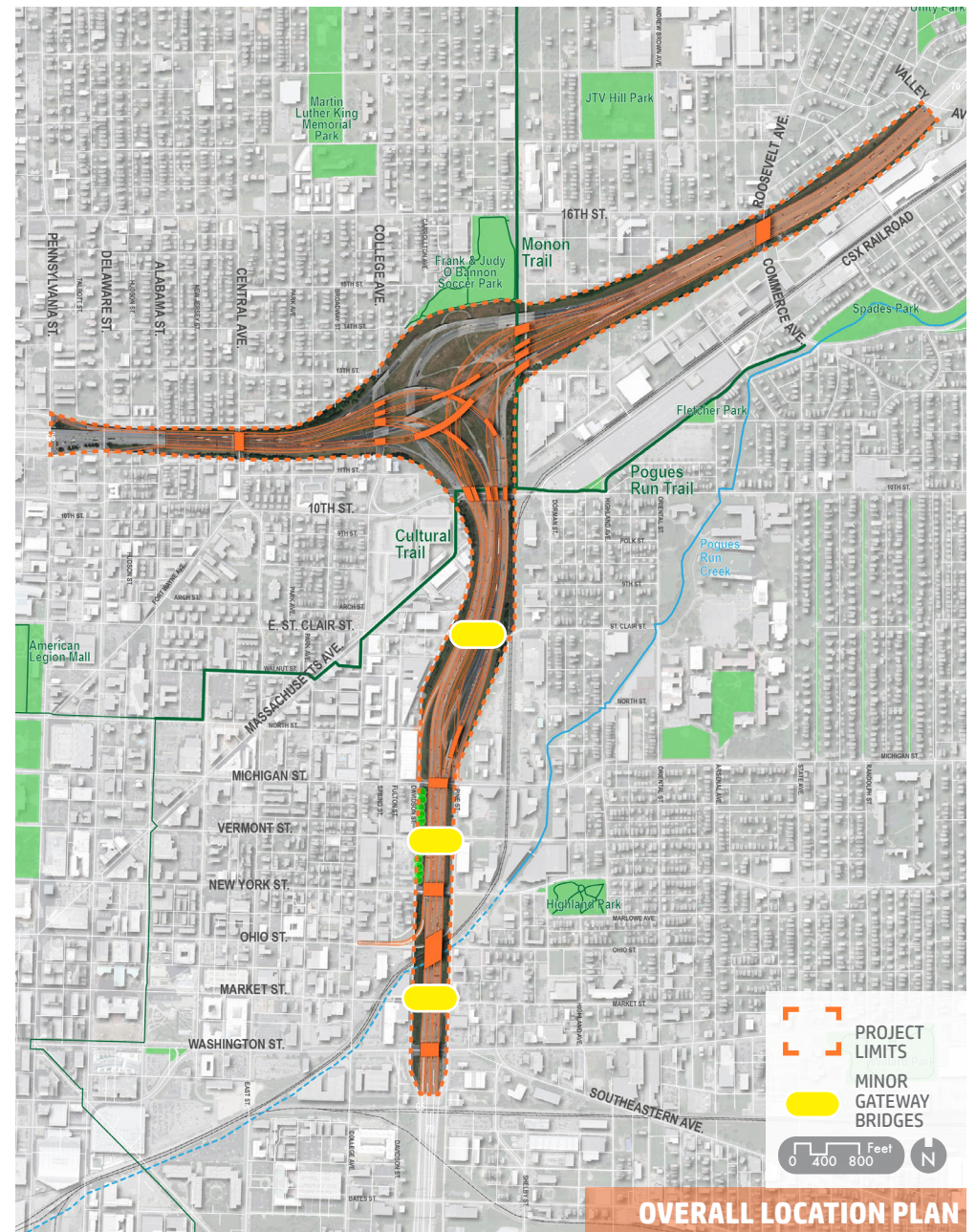
Minor Gateway Bridges provide crossing of I-65/I-70 over smaller-scaled less traveled local streets. The following summarizes the general characteristics of the Minor Underpass Bridges:

- Provide safe, efficient and accommodating pedestrian and bicycle facilities through the underpasses at the local street level to improve connectivity.
- Apply simplified treatments to abutment corner monuments, and traffic barriers while maintaining visual consistency to the Major and Standard Underpass Bridges.

Locations:

The bridges identified within the project that shall be considered Minor Gateways, as illustrated on the corridor map:

- Market Street
- Vermont Street
- St. Clair Street



MINOR GATEWAY BRIDGES

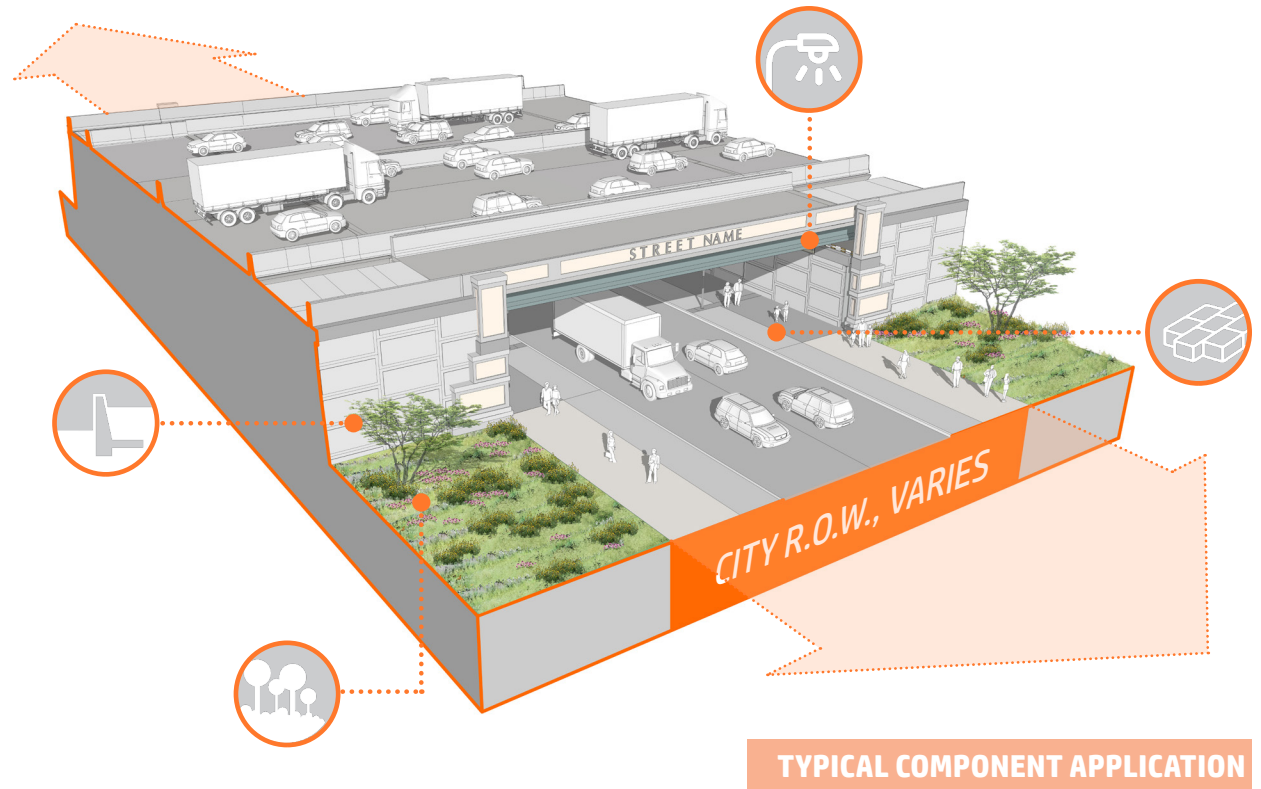
Application Summary:

This bridge type is also influenced by landmarks, identity and historic forms within the downtown and surrounding neighborhood context. The Minor Gateway Bridge design simplifies aspects of the major gateway counterpart, while still utilizing texture and shapes found in the surrounding neighborhood that celebrate the capitol city. The consistency in infrastructure features provides for the project's visual uniformity.

COMPONENT USE:

Design treatments for Minor Gateway Bridges shall include the following:

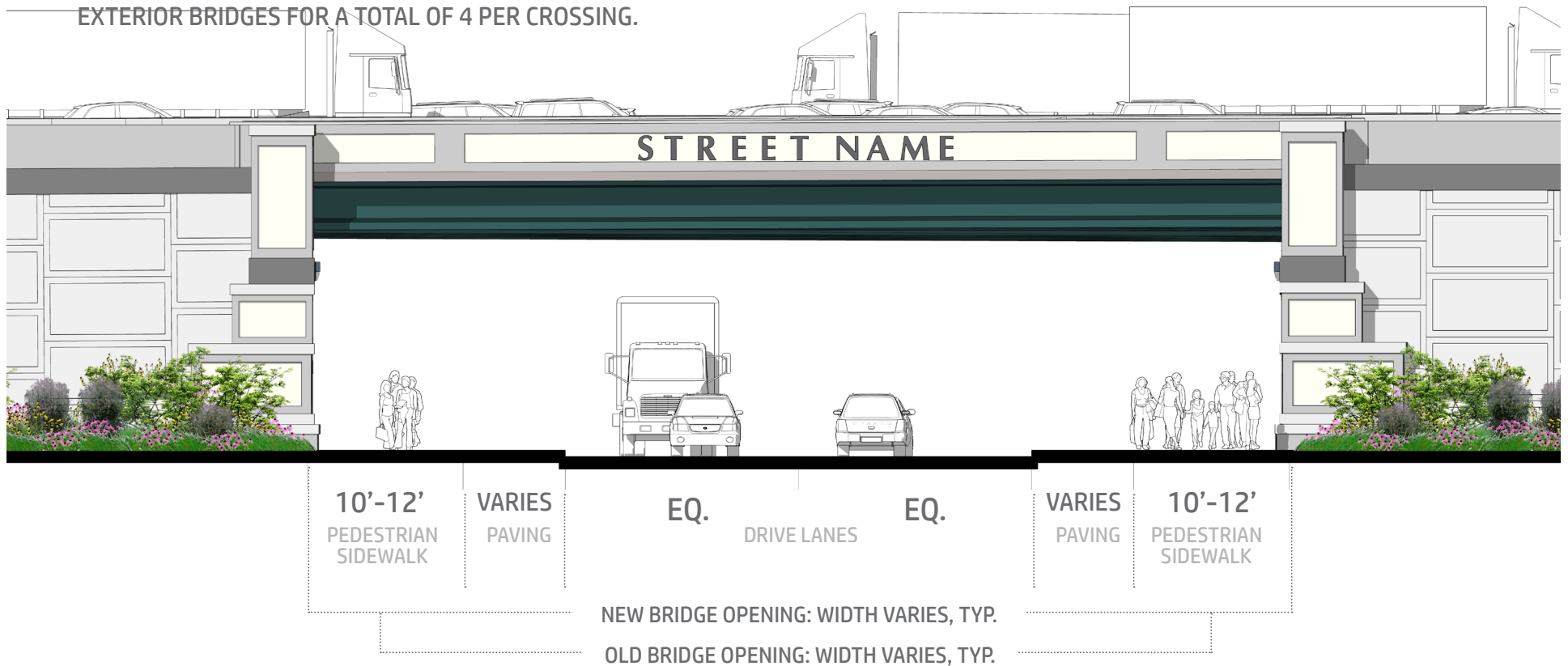
- Abutment Walls
- Lighting
- Surfacing
- Landscape



MINOR GATEWAY 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

Design Summary:

Standard Underpass Bridges provide crossing of I-65/I-70 over local streets. The following summarize the general characteristics of the Standard Underpass Bridges:

- Provide safe, efficient and accommodating pedestrian and bicycle facilities at the local street level to improve connectivity.
- Apply simplified treatments with visual consistency to the Major and Minor Underpass Bridges.

Standard Underpass Locations:

The bridges identified within the project that shall receive the standard underpass treatment at the following locations, as illustrated on the corridor map:

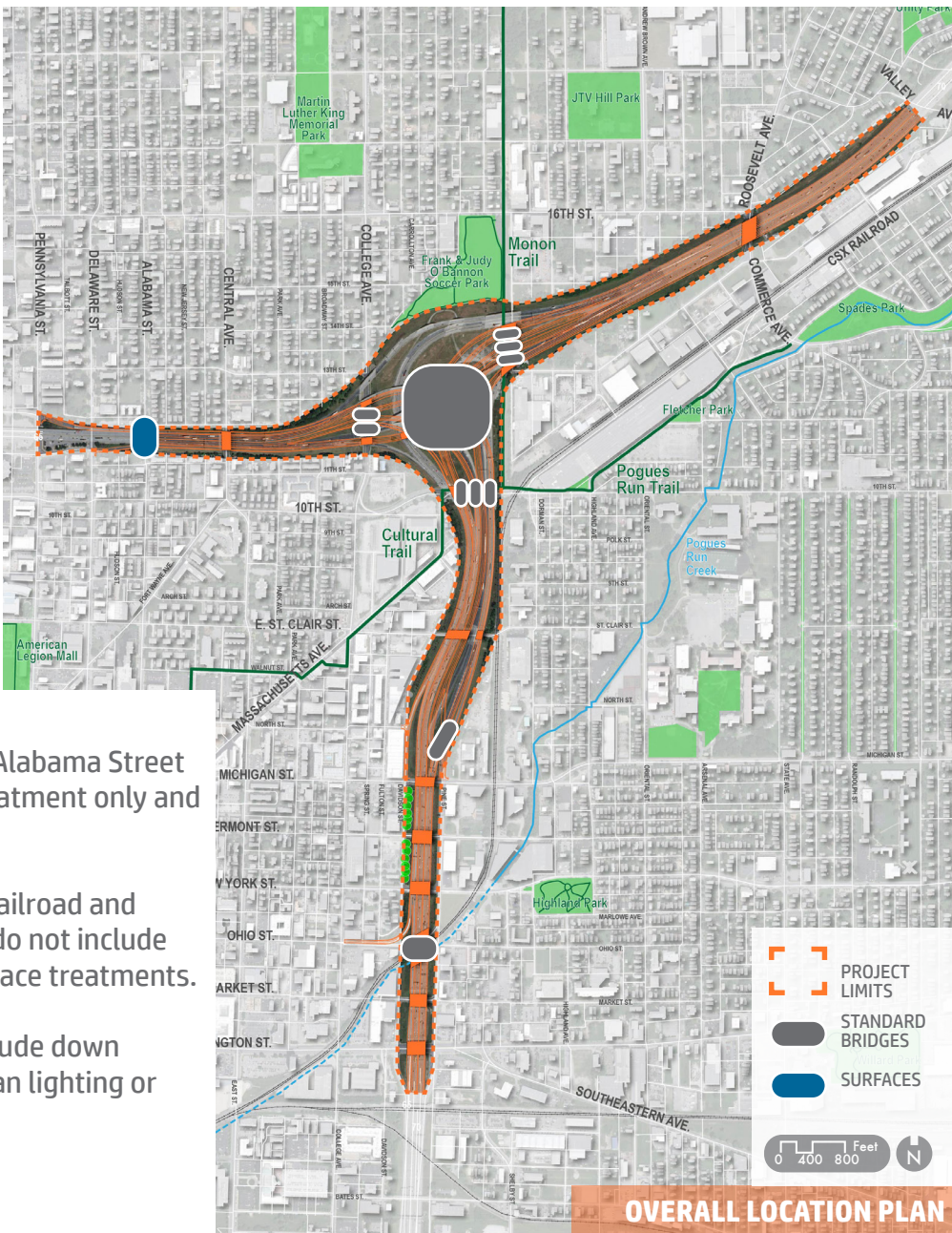
- College Avenue (2 internal bridges)
- 10th Street (3 internal bridges)
- Pine Street (1 straddle bent)
- Lewis Street/ Monon Trail (3 internal bridges)
- Ohio Street & CSX Railroad (3 bridges)
- Interchange (all bridge locations)

Treatment Notes:

The Standard Bridge at Alabama Street shall receive surface treatment only and no pedestrian lighting.

The Ohio Street & CSX Railroad and the Pine Street bridges do not include pedestrian lights or surface treatments.

Interchange bridges include down lighting but no pedestrian lighting or surface treatments.



STANDARD UNDERPASS BRIDGES

Application Summary:

This bridge type is a simplified version of the three types. It is to be used in conditions where visibility is less significant or it is less visible, such as between two Major or Minor Gateway Bridges if the bridge span requires multiple bridge decks. This bridge is intended to maintain visual uniformity and continue to enhance the design aesthetic within the project area.

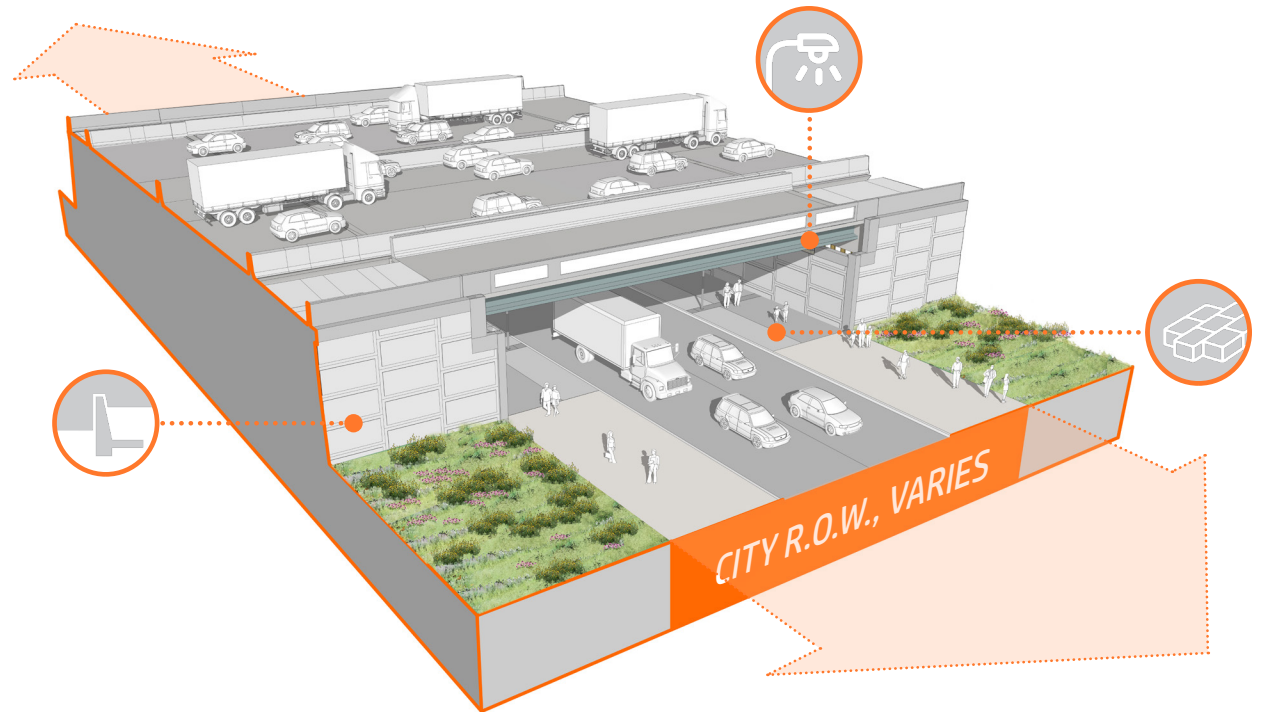
COMPONENT USE:

Standard Bridge treatments shall include the following components:

- Abutment Walls
- Lighting
- Surfacing

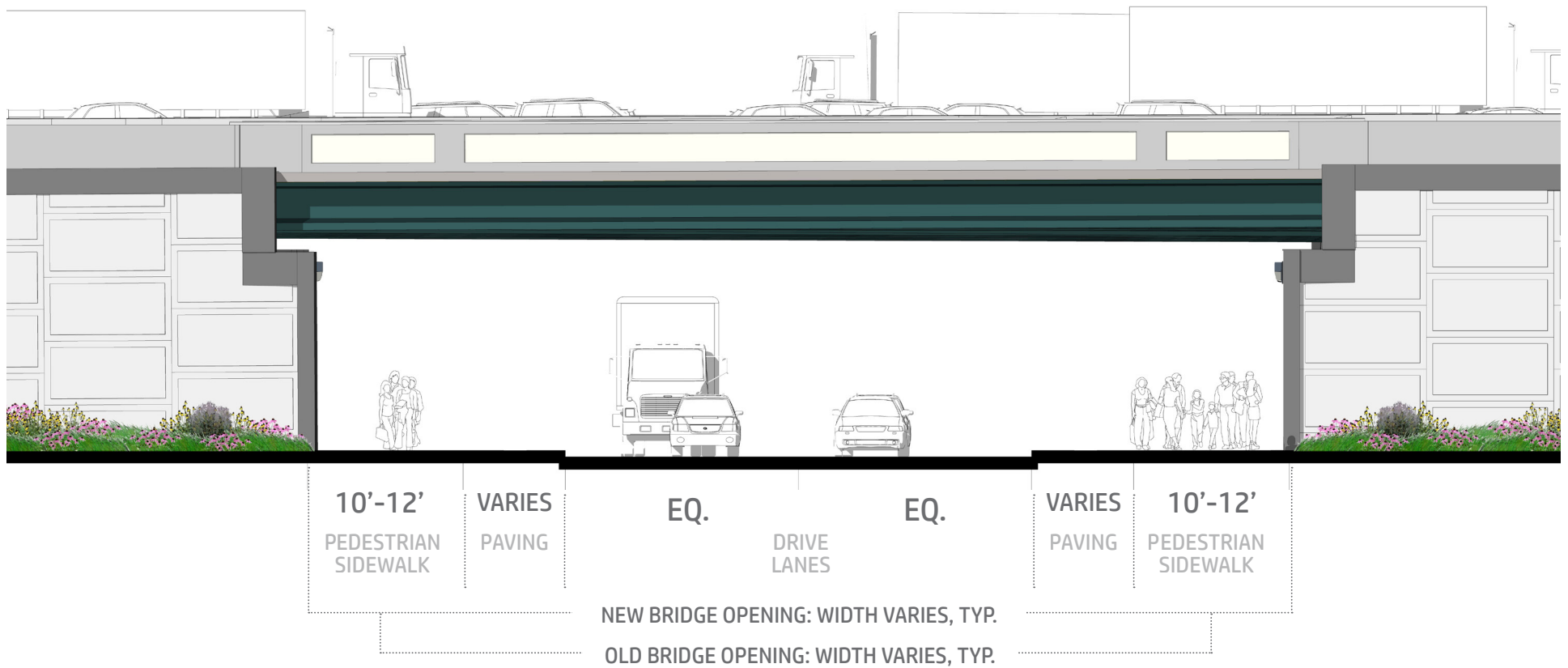
NOTE:

Local level surface treatments will not apply to interchange bridges and ramp bridges where no pedestrian facilities currently exist.



TYPICAL COMPONENT APPLICATION

STANDARD UNDERPASS BRIDGE APPLICATION



TYPICAL STANDARD BRIDGE ELEVATION

LANDSCAPE INTRODUCTION

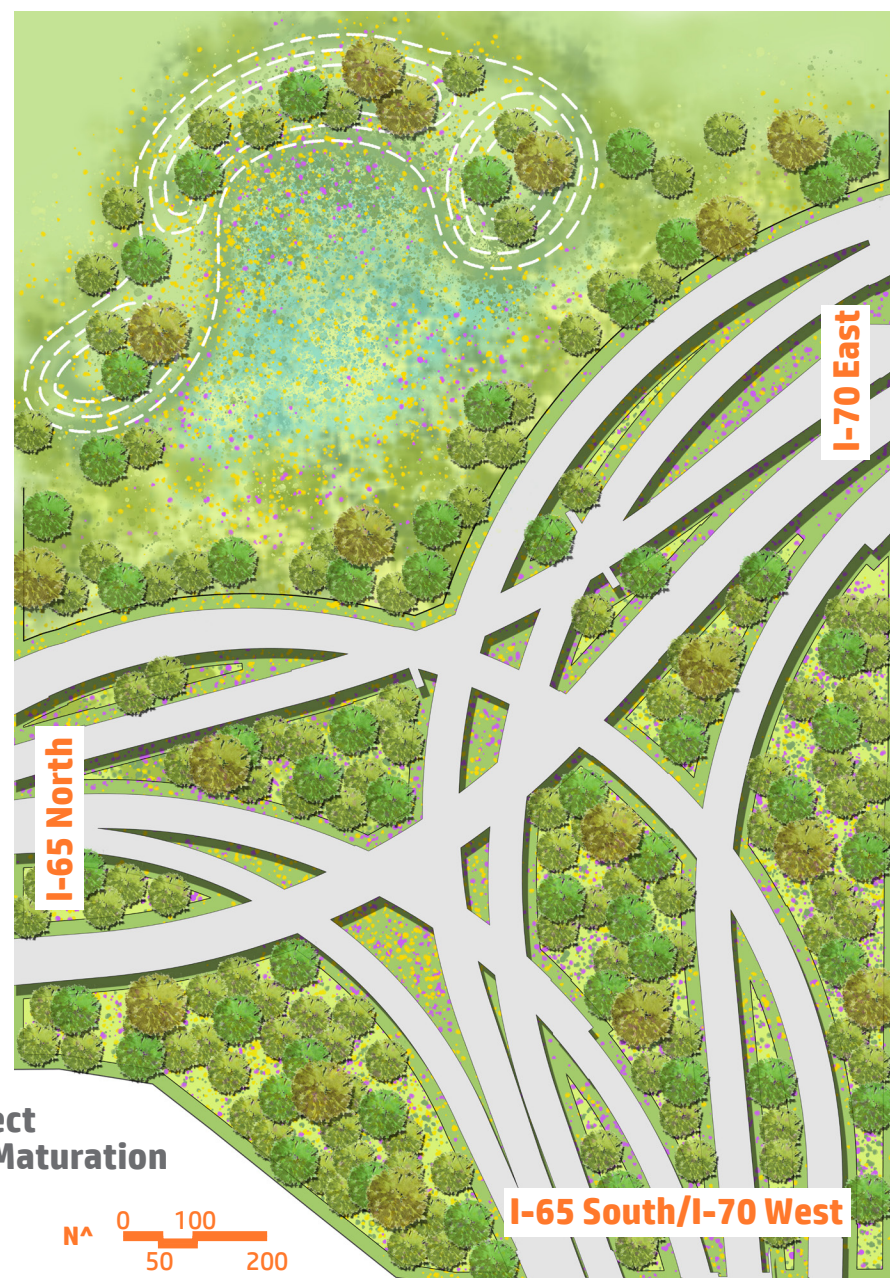
Landscape Summary

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.

**I-65/I-70 North Split Project
Interchange Plantings at Maturation**



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 occurring 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.

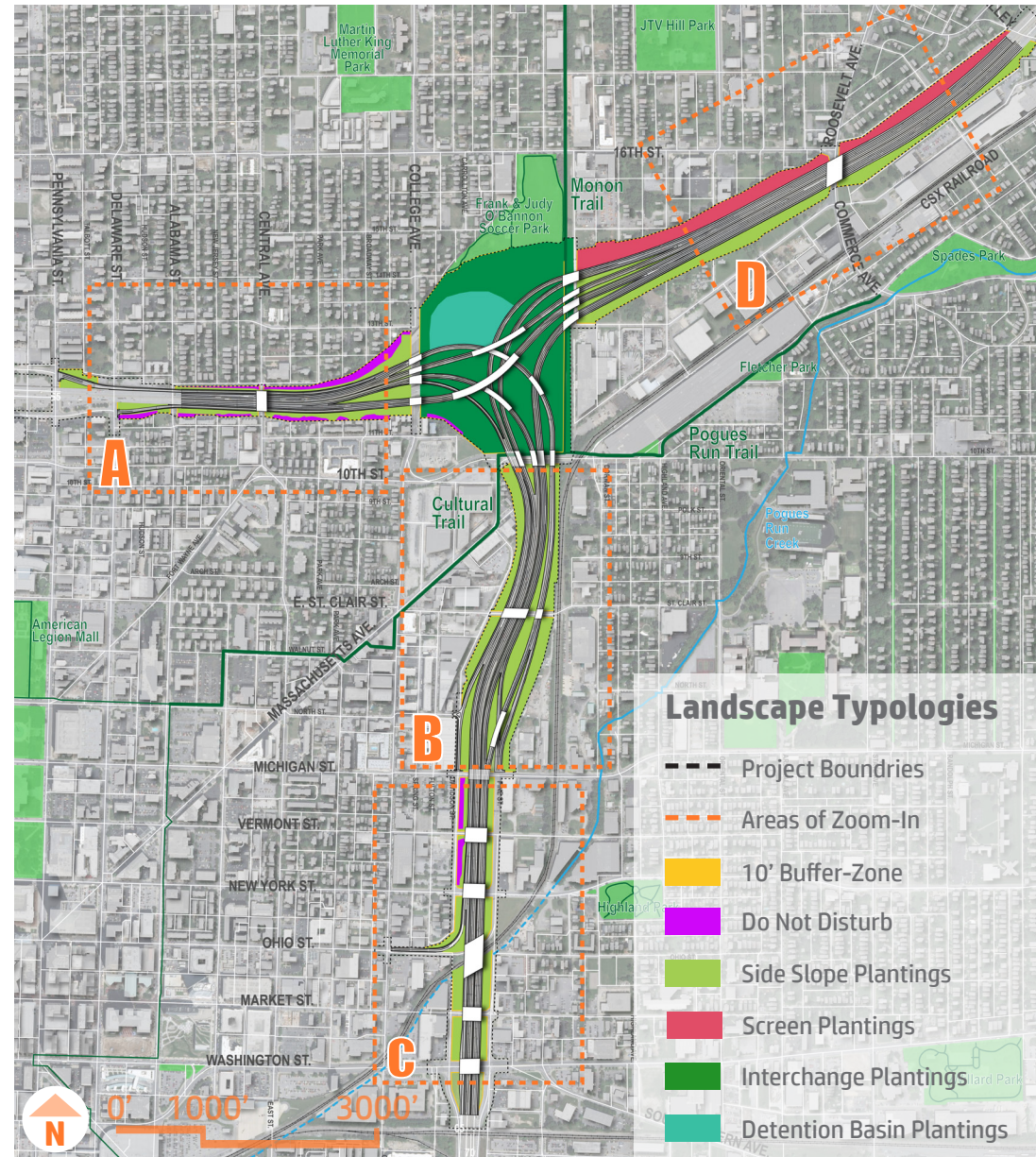
LANDSCAPE OVERVIEW

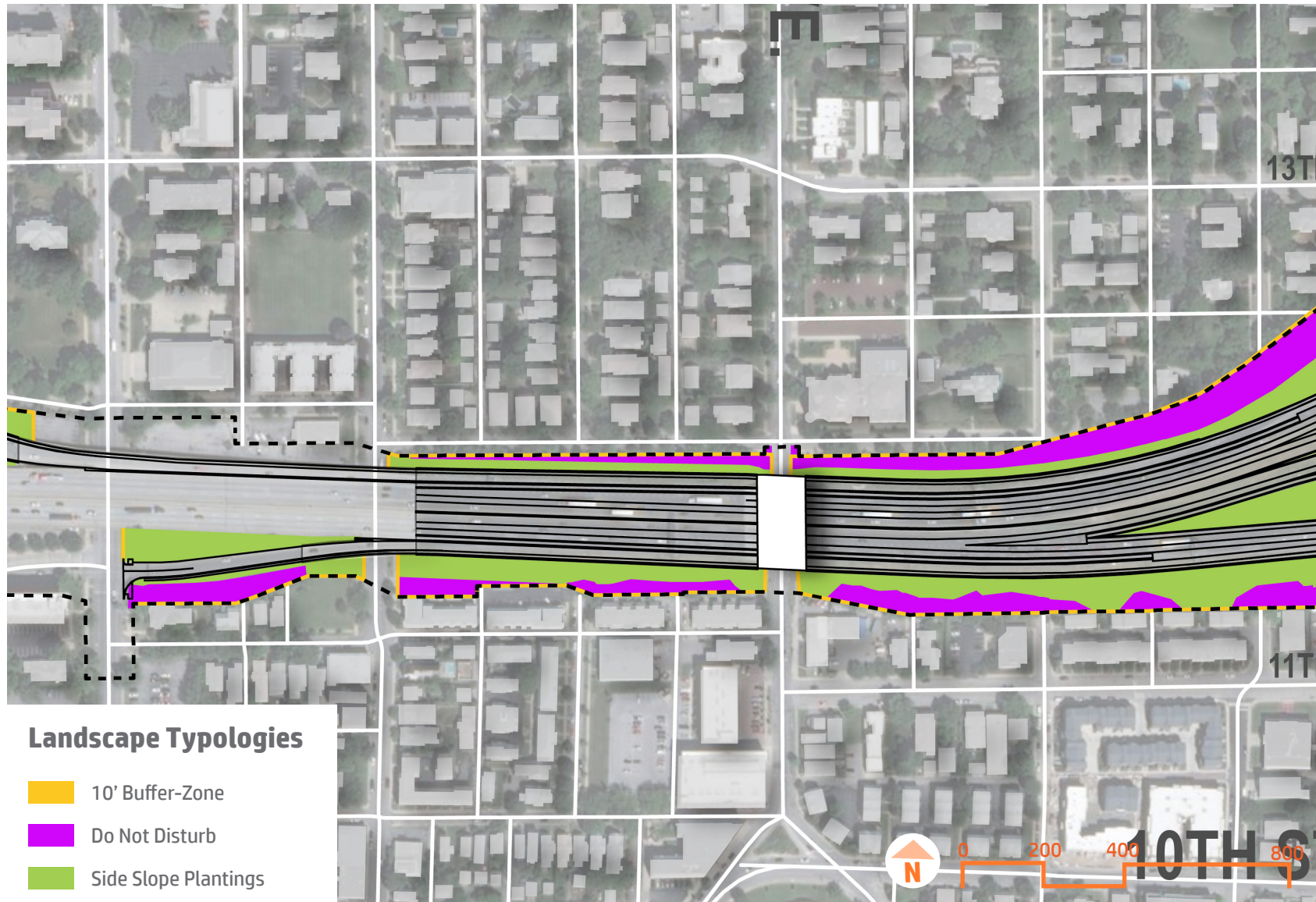
Design Summary

The landscape palette shall utilize a range of treatments that focus on native plant selections to enhance the interchange and overall corridor. The graphic on the right identifies **general** areas of appropriateness for landscape treatment typologies. Final typologies may vary depending on the final engineering considerations of the interstate and associated structures.

Guidelines

- Use native, low-maintenance plants whenever possible
- Soften urban elements of the corridor with a naturalized placement of plants
- Provide a diverse palette of plants species

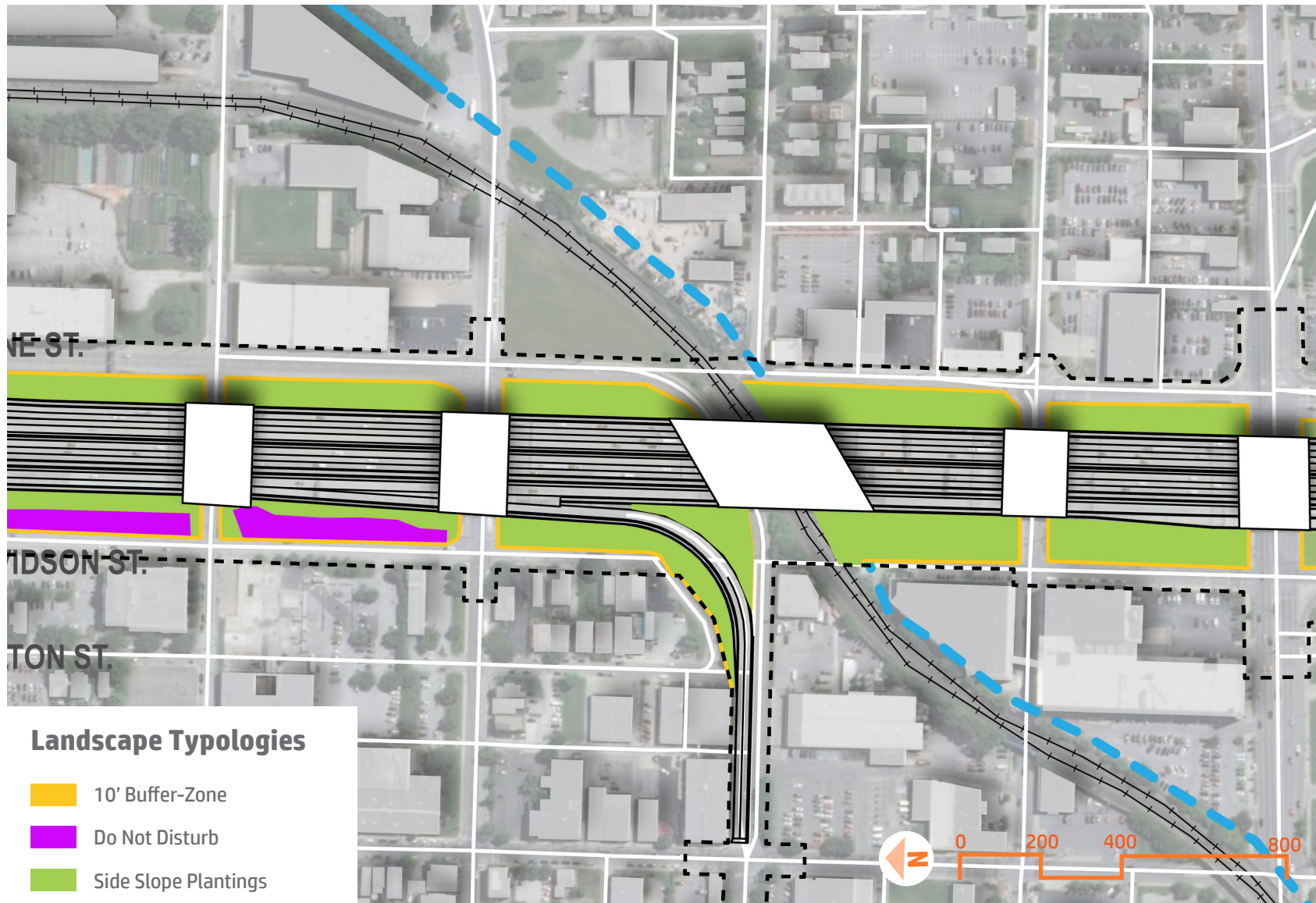




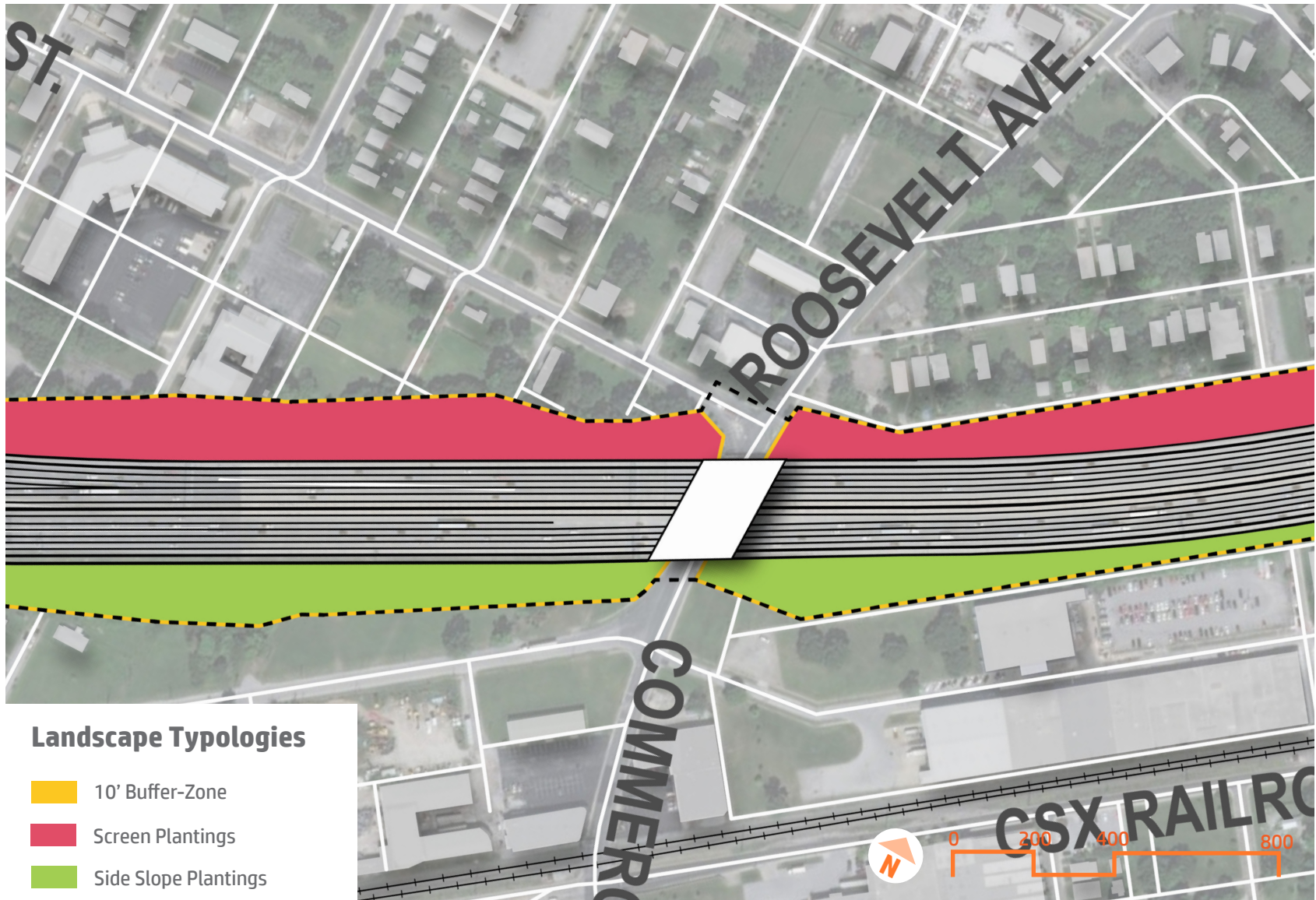
A. WEST LEG



B. SOUTH LEG BETWEEN 10TH STREET AND MICHIGAN STREET



C. SOUTH LEG BETWEEN MICHIGAN STREET AND WASHINGTON STREET



D. EAST LEG

QUANTITIES FOR COST ESTIMATING

Summary

The information provided outlines the total square feet of each typology and then the square feet of each plant material that makes up the typology. The square footage follows the design guidelines and parameters of placement for all plant material.

Seed coverage and on-center plant spacing are provided, and shall be followed for the unique conditions of each typology.

The plantings will follow Keep Indianapolis Beautiful's (KIB) planting standard of 15' on-center maximum spacing for all deciduous shade and ornamental trees. Evergreen screen trees will differ at a 10' on-center maximum spacing. Small deciduous and evergreen shrubs will be planted at 4' on-center, while large deciduous shrubs will be planted at 8' on-center. Plugs will be planted at 6" on-center.

Typology 1: Tree Preservation Areas

Approximate Total Square Feet: 187,300

Typology 2: 10' Buffer-Zone

Approximate Total Square Feet: 247,600

***NO-MOW, ECO-LAWN SEED MIX* Square Feet of Coverage: 247,600**

Coverage applied at a rate of 220 PLS (Pure Live Seed) pounds per acre.

Typology 3: Side Slope Plantings

Approximate Total Square Feet: 1,528,200

***SLOPE STABILIZATION SEED MIX* Square Feet of Coverage: 1,528,200**

Coverage applied at a rate of 60 PLS (Pure Live Seed) pounds per acre

***NATIVE GRASSES* Square Feet of Coverage: 68,400**

Plugs, Planted 6" On-Center

***NATIVE FORBS* Square Feet of Coverage: 68,400**

Plugs, Planted 6" On-Center

***SMALL SHRUBS* Square Feet of Coverage: 278,280**

Minimum 3-Gallon Container, Planted 4' On-Center

***LARGE, DECIDUOUS SHRUBS* Square Feet of Coverage: 278,280**

Minimum 3-Gallon Container, Planted 8' On-Center

***ORNAMENTAL TREES* Square Feet of Coverage: 278,280**

5-6' Tall, Planted at 15' On-Center

***SHADE TREES* Square Feet of Coverage: 278,280**

Minimum 2" Caliper, Planted at 15' On-Center

QUANTITIES FOR COST ESTIMATING

Typology 4: Screen Plantings

Approximate Total Square Feet: 378,500

***SLOPE STABILIZATION SEED MIX* Square Feet of Coverage: 378,500**

Coverage applied at a rate of 60 PLS (Pure Live Seed) pounds per acre

***LARGE, DECIDUOUS SHRUBS* Square Feet of Coverage: 23,655**

Minimum 3-Gallon Container, Planted 8' On-Center

***ORNAMENTAL TREES* Square Feet of Coverage: 23,655**

5-6' Tall, Planted at 15' On-Center

***COLUMNAR TREES* Square Feet of Coverage: 23,655**

Minimum 2" Caliper, Planted at 10' On-Center

***SHADE TREES* Square Feet of Coverage: 23,655**

Minimum 2" Caliper, Planted at 15' On-Center

***EVERGREEN TREES* Square Feet of Coverage: 189,250**

Minimum 6' Tall, Ball and Burlap Planted at 10' On-Center

QUANTITIES FOR COST ESTIMATING

Typology 5: Interchange Plantings

Approximate Total Square Feet: 1,476,900

***PRAIRIE SEED MIX* Square Feet of Coverage: 1,476,900**

Coverage applied at a rate of 40 PLS (Pure Live Seed) pounds per acre

***NATIVE WILDFLOWER SEED MIX* Square Feet of Coverage: 1,476,900**

Coverage applied at a rate of 5 PLS (Pure Live Seed) pounds per acre

***ORNAMENTAL TREES* Square Feet of Coverage: 492,300**

5-6' Tall, Planted at 15' On-Center

***SHADE TREES* Square Feet of Coverage: 984,600**

Minimum 2" Caliper, Planted at 15' On-Center

Typology 6: Detention Basin Plantings

Approximate Total Square Feet: 437,700

***STORMWATER SEED MIX* Square Feet of Coverage: 291,800**

Coverage applied at a rate of 35 PLS (Pure Live Seed) pounds per acre

***PRAIRIE SEED MIX* Square Feet of Coverage: 145,900**

Coverage applied at a rate of 40 PLS (Pure Live Seed) pounds per acre

***LARGE, DECIDUOUS SHRUBS* Square Feet of Coverage: 145,900**

Minimum 3-Gallon Container, Planted 8' On-Center

***SHADE TREES* Square Feet of Coverage: 145,900**

Minimum 2" Caliper, Planted at 15' On-Center

TPOLOGY 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

*Locations for the tree preservation areas can be found in the map on page 40.

TYOLOGY 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

Why 10' Buffer-Zones?

The buffer zone is located in the areas between the back-of-curb along all local roadways and plantings, between property owner lines and plantings, and between any trails/walks and plantings. Along roadways, this area helps to increase visibility for drivers at road edges and corners. They are flexible-use spaces offering potential driver and pedestrian amenities, such as street trees and sidewalks, that are dependent upon context conditions. Ten feet was determined an appropriate buffer width, however, this width is able to change with the unique context conditions.

SUGGESTED SEED MIX COMPOSITION:

NO-MOW, ECO-LAWN SEED MIX

The mix shall include, but is not limited to, an equal blend of the following species and be applied at a rate of 220 PLS (Pure Live Seed) pounds per acre.

Shoreline Creeping Red Fescue exhibits both salt tolerance and Rapid Blight resistance, as well as excellent heat and drought tolerance.

Class One Creeping Red Fescue thrives in both sun and shade with little to no irrigation and performs well in high heat and under reduced maintenance.

SR3150 Hard Fescue is among the most heat and drought tolerant of all fine fescues and requires minimal water and fertilization in both sun and shade.

Quatro Sheep Fescue is low growing and establishes rapidly from seed, yet it's one of the slowest growing grasses available. It also exhibits excellent drought and heat tolerance.

Carson Chewings Fescue makes a very high quality turf and is the most competitive of the fine fescues helping to crowd out weeds.

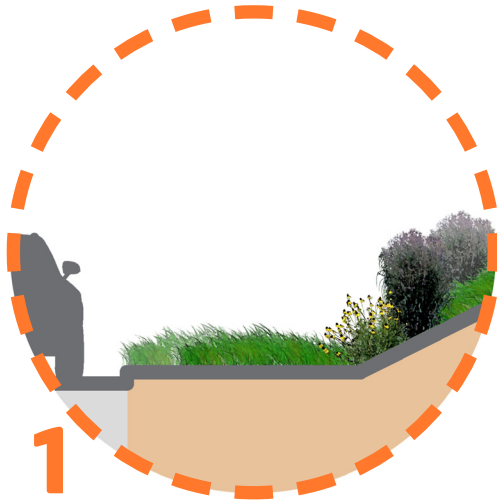


Wildflower Farm via Creston
Eco-lawn natural appearance on slope.



Wildflower Farm via Yvonne
Eco-lawn mown versus natural appearance.

TPOLOGY 2: 10' BUFFER-ZONES



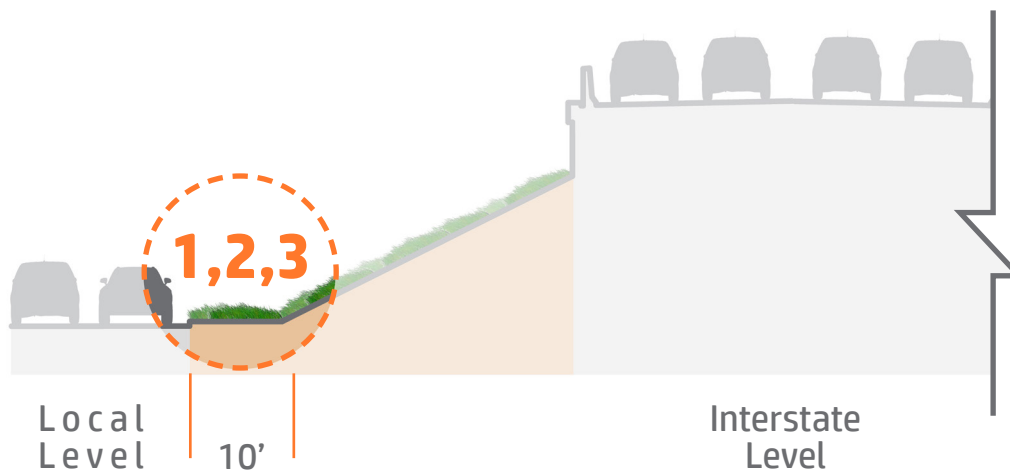
Standard Condition: Buffer-Zone Lining Local Level Roadway Edges



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

TPOLOGY 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

SUGGESTED SEED MIX COMPOSITION:

SLOPE STABILIZATION SEED MIX

The seed mix shall include deep-rooted, native species suited for sloped sites and erosion control with the following composition:

Approximately 20% Permanent Grass/ Sedge Species Seed and 80% Temporary Cover Species Seed applied at a rate of approximately 60 PLS (Pure Live Seed) pounds per acre.

This planting application shall be used along the east, west and south interstate leges, in areas where steepness of grade creates erosion control concerns and locations where design can rely on the use of planted slopes rather than built structures for retention of terrain. Tree canopies CANNOT overhang the interstate level roadway.

Side Slope Plantings General Guidelines:

- Plantings (unrelated to seed mixes) should be staggered in mass and placed parallel to contours, dispersing run-off rather than concentrating water flow between plant rows.
- Species with deep and/or wide spreading roots should be incorporated for soil stabilization.
- Broadleaf species should be incorporated to help with impact dispersion of rainfall.
- Protective covering should be used to protect seed from weather and wildlife until maturation - erosion control blankets, vegetated core logs, cover crop, etc.



Cardno Native Plant Nursery
Slope Stabilization Seed Mix



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



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

TYOLOGY 3: SIDE SLOPE PLANTINGS

Suggested Species Summary

The North Split Aesthetic Design Guidelines document provides suggestions for expanded plant palettes, some outside of standard INDOT and KIB plantings, that respond to the design concept of each typology. This is applicable to the suggested mixes and species for all typologies.

SUGGESTED PLANT SPECIES:

Native Grasses

Plugs, Planted 6" On-Center

- Sideoats Grama (*Bouteloua curtipendula*)
- Switchgrass (*Panicum virgatum*)
- Little Bluestem (*Schizachyrium scoparium*)
- Prairie Dropseed (*Sporobolus heterolepis*)

Native Forbs

Plugs, Planted 6" On-Center

- Butterfly Weed (*Asclepias tuberosa*)
- Purple Coneflower (*Echinacea purpurea*)
- New England Aster (*Symphyotrichum novae-angliae*)
- Yellow Coneflower (*Ratibida pinnata*)

Small Evergreen Shrubs

Minimum 3-Gallon Container, Planted 4' On-Center

- Juniper (*Juniperus virginiana* 'Grey Owl')

Small, Deciduous Shrubs

Minimum 3-Gallon Container, Planted 4' On-Center

- Black Chokeberry (*Aronia melanocarpa*)
- New Jersey Tea (*Ceanothus americanus*)
- Virginia Sweetspire (*Itea virginica*)
- Fragrant Sumac (*Rhus aromatica*)



Switchgrass



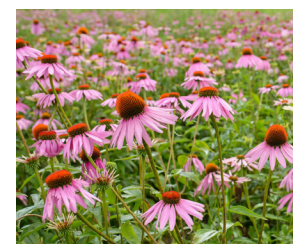
Little Bluestem



Prairie Dropseed



Asclepias tuberosa



Echinacea Purpurea



New England Aster



Grey Owl Juniper



Chokeberry

TYPOLGY 3: SIDE SLOPE PLANTINGS

SUGGESTED PLANT SPECIES (continued):

Large, Deciduous Shrubs

Minimum 3-Gallon Container, Planted 8' On-Center

- Winterberry (*Ilex verticillata*)
- Smooth Sumac (*Rhus glabra*)
- Arrowwood Viburnum (*Viburnum dentatum*)

Ornamental Trees

5-6' Tall, Planted at 15' On-Center

- Serviceberry (*Amelanchier x grandiflora*)
- Redbud (*Cercis canadensis*)
- Flowering Dogwood (*Cornus florida*)
- Green Hawthorn (*Crataegus viridis*)

Shade Trees

Minimum 2" Caliper, Planted at 15' On-Center
See "Shade Trees" under *Typology 4: Screen Plantings* section for Appropriate Species



Itea virginica



Fragrant Sumac



Winterberry



Smooth Sumac



Arrowwood Viburnum



Serviceberry



Redbud



Flowering Dogwood



Green Hawthorn

TPOLOGY 3: SIDE SLOPE PLANTINGS



Seed Mix

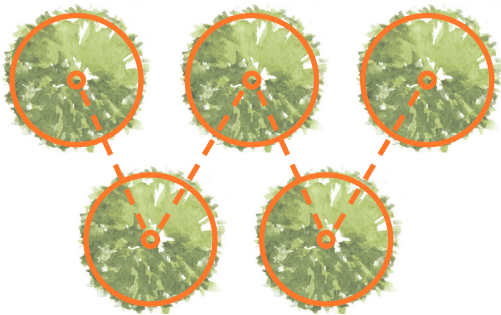


Seed Mix + Shrubs

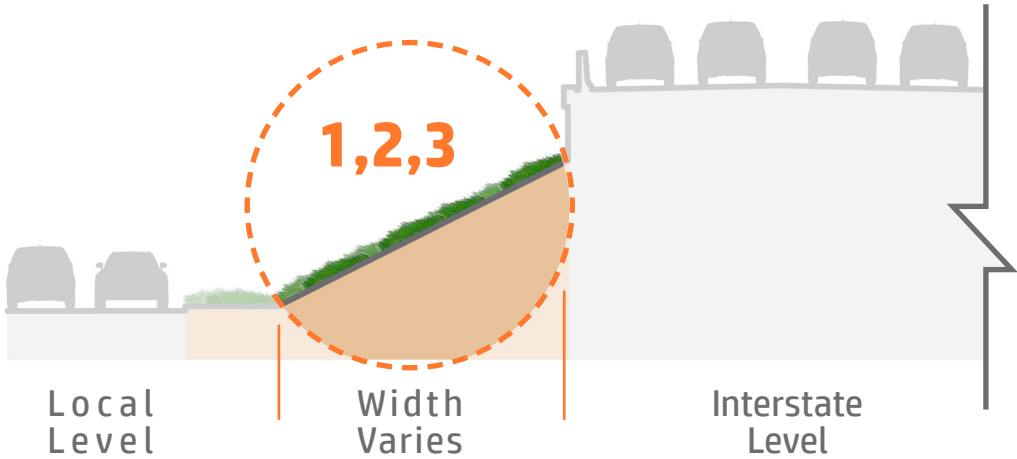


Seed Mix + Shrubs + Trees

Deep-rooted, native plants create a fibrous root system for embankment stabilization.



Staggered planting layouts for shrubs & trees assist with erosion control.



Side Slope Plantings Scenarios

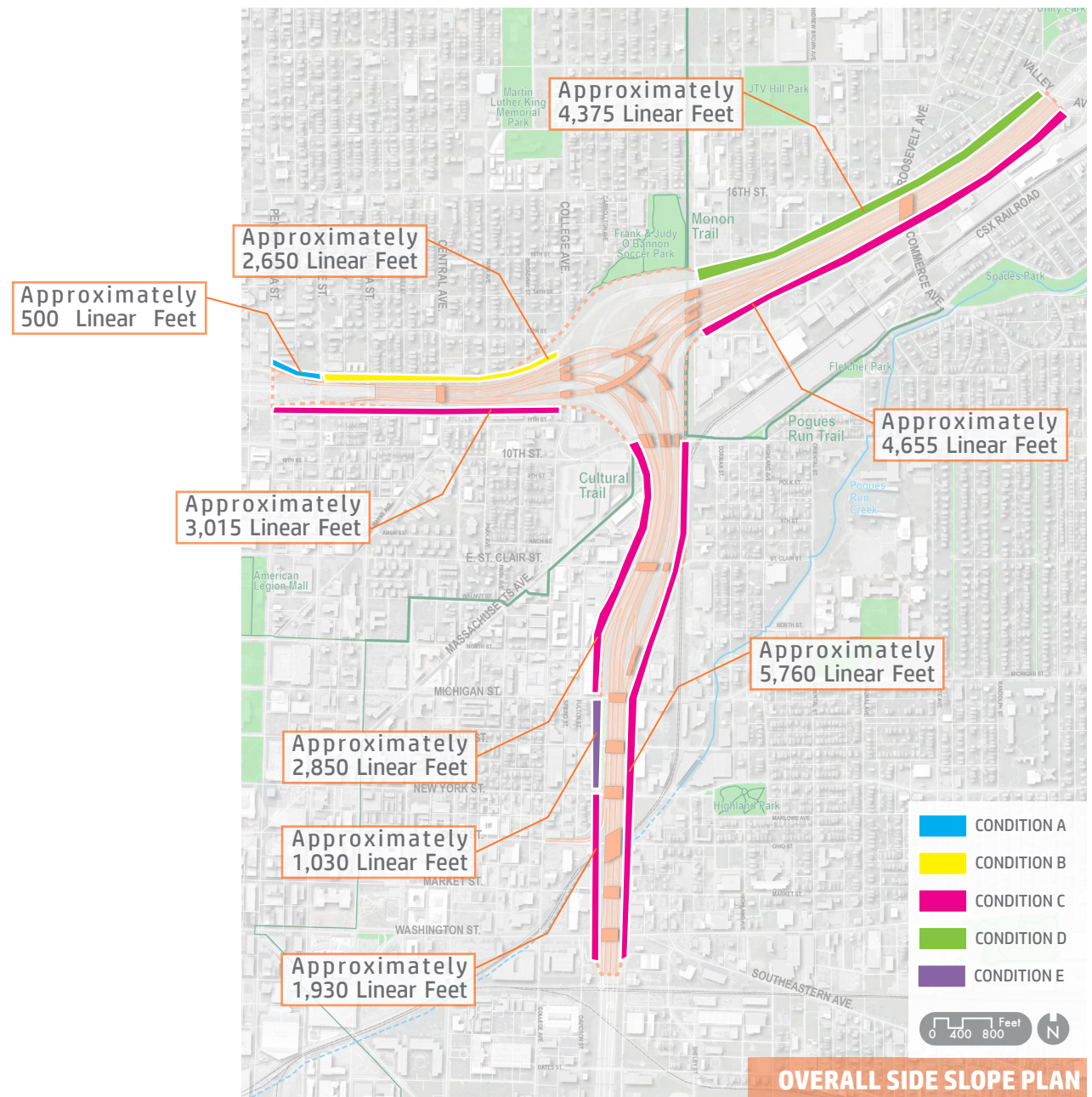
TYPOLGY 3: SIDE SLOPE PLANTINGS



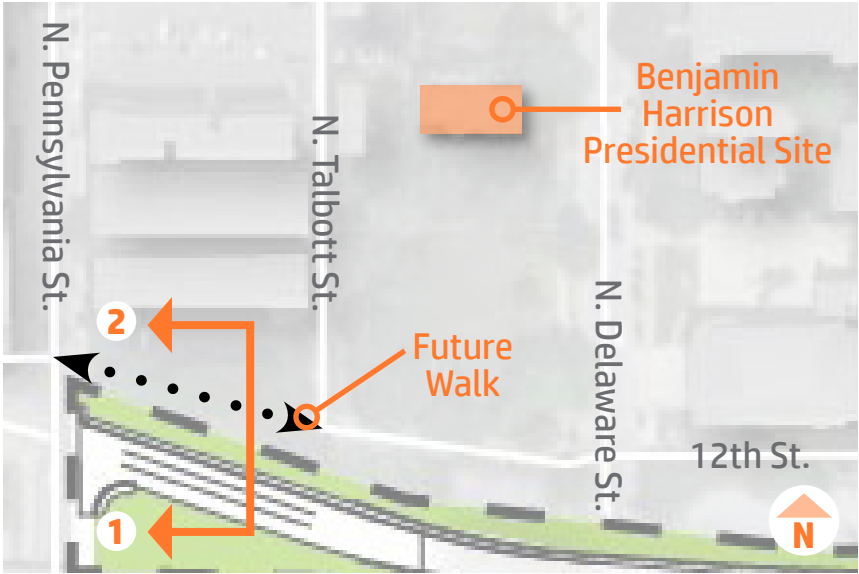
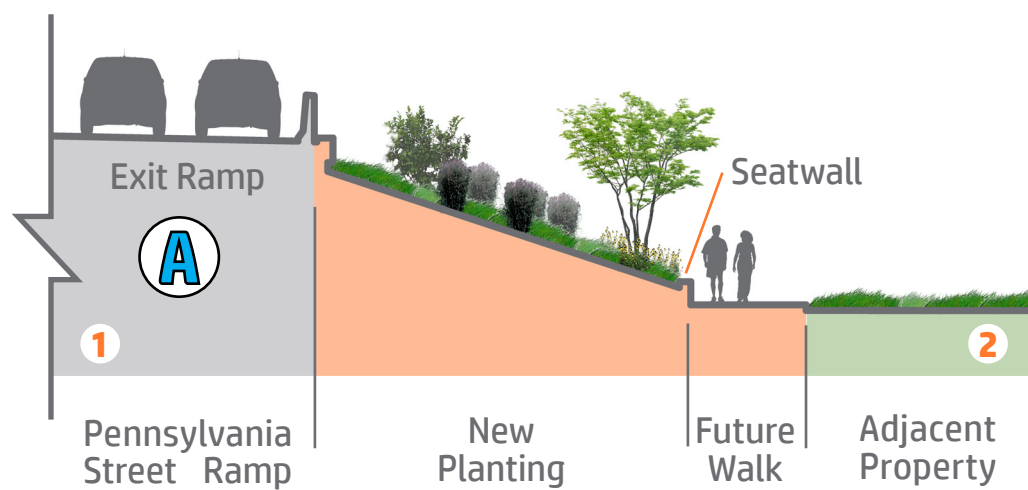
TYOLOGY 3: TYPICAL SIDE SLOPE CONDITIONS

Characteristics of Slopes

- Integrate landform design, grading, drainage and detention basin configuration with landscaping of interchange
- Grade embankments to slopes that are safely maintainable and eliminate rip-rap
- Configure ditches, swales, and detention basins to appear natural



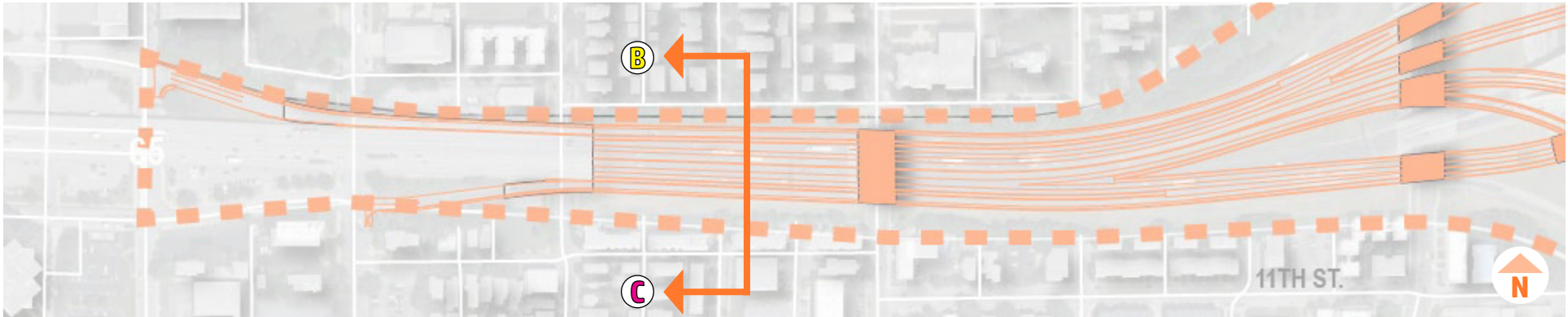
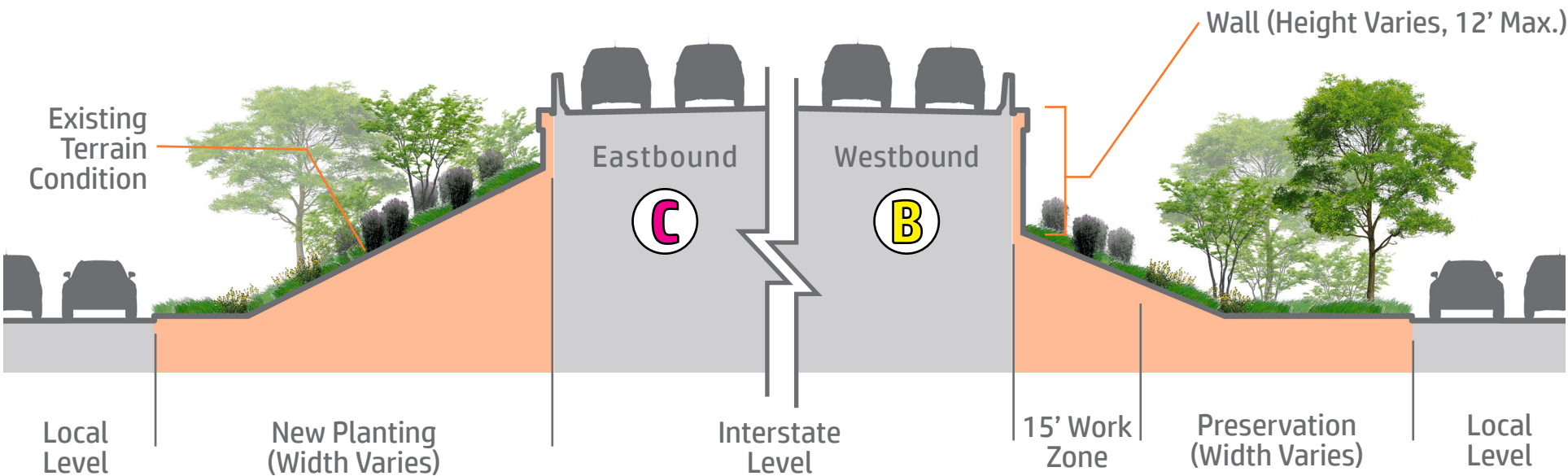
TYPOLGY 3, CONDITION A



West Leg Pennsylvania Street Ramp Side Slope Conditions (Not to Scale)

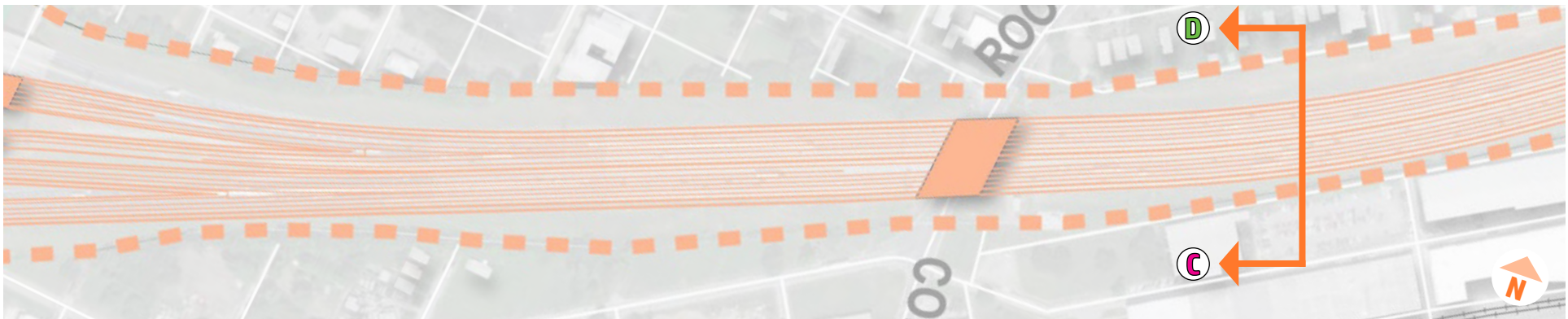
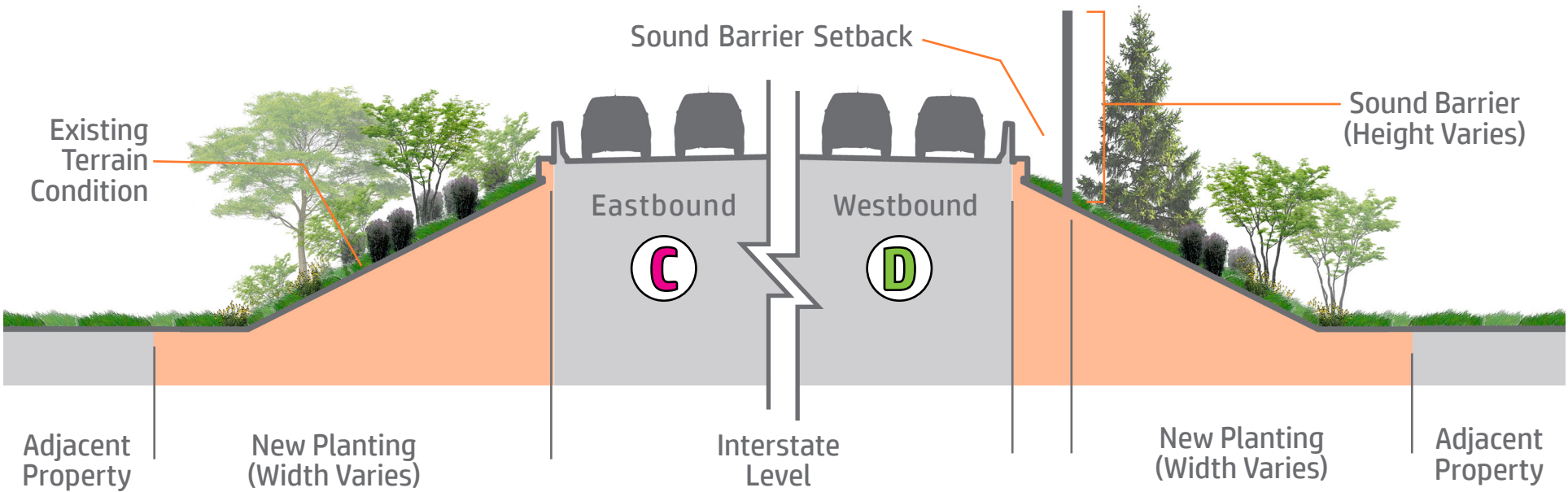
*Note: Construction of the future walk will be completed by others, outside of the project Right of Way, and its distance in relation to the seatwall is subject to change.

TPOLOGY 3, CONDITIONS C & B



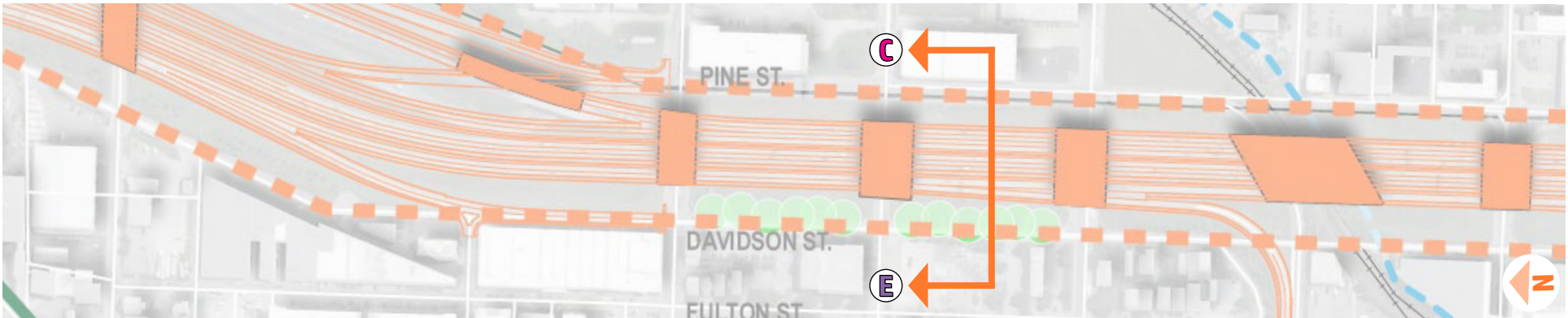
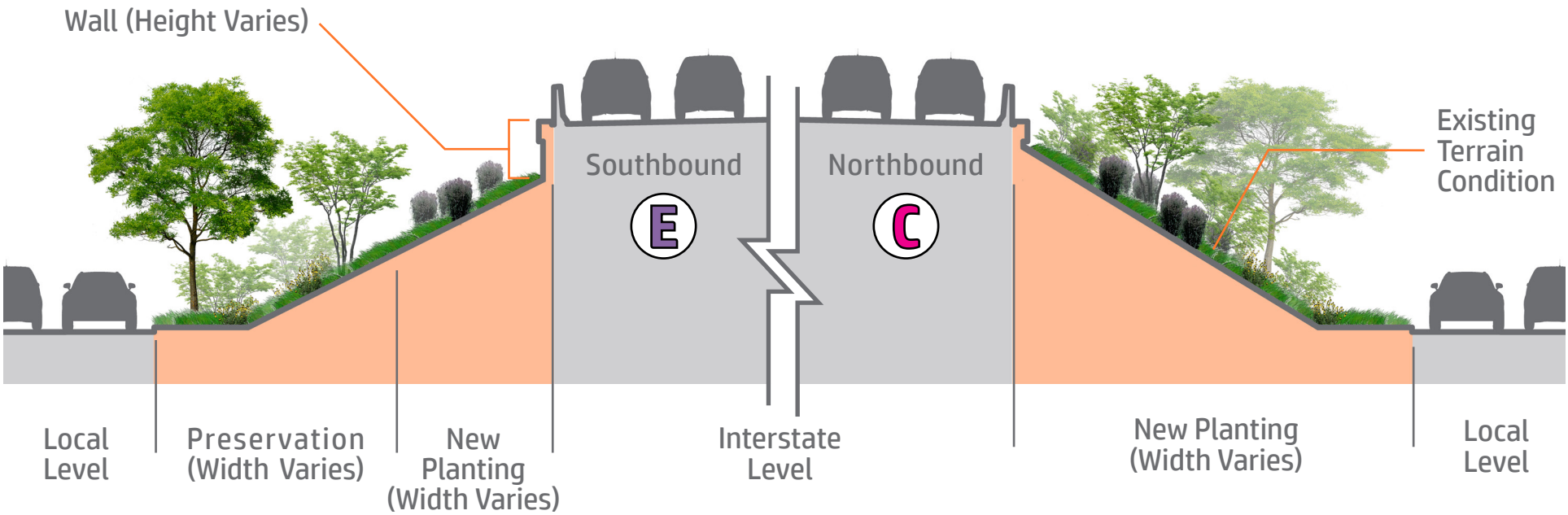
West Leg Slope Conditions (Not to Scale)

TYOLOGY 3, CONDITIONS C & D



East Leg Slope Conditions (Not to Scale)

TYPOLGY 3, CONDITION E & C



South Leg Slope Conditions (Not to Scale)

TPOLOGY 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

Screen Plantings General Design Guidelines:

- Plantings to screen should be used to mitigate scale between the interstate and neighborhoods.
- Screens need to have a vertical emphasis to provide maximum screening coverage.
- Arrangement should provide pedestrian and vehicular overhead along walks, trails, and roadways - at local street fronts.
- Plantings should include a 2:1 ratio of evergreen to deciduous species, offering year-round screening.
- Species variation is important but may require focus on deciduous varieties that are columnar in form for plants to fit the allotted space.
- Plantings will be placed along side slopes, at the base of sound barriers.

SUGGESTED SPECIES:

Large, Deciduous Shrubs

See “Large, Deciduous Shrubs” under the *Typology 3: Side Slope Plantings* section for Appropriate Species

Ornamental Trees

See “Ornamental Trees” under the *Typology 3:*

Side Slope Plantings section for Appropriate Species

Columnar Trees (applicable to narrow locations) Minimum 2” Caliper, Planted at 15’ On-Center

- Sweetgum (*Liquidambar styraciflua* ‘Slender Silhouette’)
- Pin Oak (*Quercus palustris* ‘Green Pillar’)
- Freeman Maple (*Acer x freemanii* ‘Armstrong’)
- European Hornbeam (*Carpinus betulus* ‘Fastigiata’)



Slender Silhouette Sweetgum



Green Pillar Pin Oak



Freeman Maple



Upright European Hornbeam

TPOLOGY 4: SCREEN PLANTINGS

SUGGESTED SPECIES (continued):

Shade Trees (applicable along local street front)
Minimum 2" Caliper, Planted at 15' On-Center

- Red Maple (*Acer rubrum*)
- Honey Locust (*Gleditsia triacanthos* var. *inermis*)
- Red Oak (*Quercus rubra*)
- American Elm (*Ulmus americana* 'Princeton')



Red Maple



Red Oak



Honeylocust



American Elm

Shade Trees Installation Guidelines

- Trees should be placed so that canopies do not overhang the interstate level.
- Trees should be placed to grow together upon maturation.

Evergreen Trees
Minimum 6' Tall, Ball and Burlap Planted at 10' On-Center

- Arborvitae (*Thuja* 'Green Giant')
- Red Cedar (*Juniperus virginiana* 'Burkii')
- Red Cedar (*Juniperus virginiana* 'Canaertii')



Green Giant Arborvitae



Burkii Eastern Red Cedar



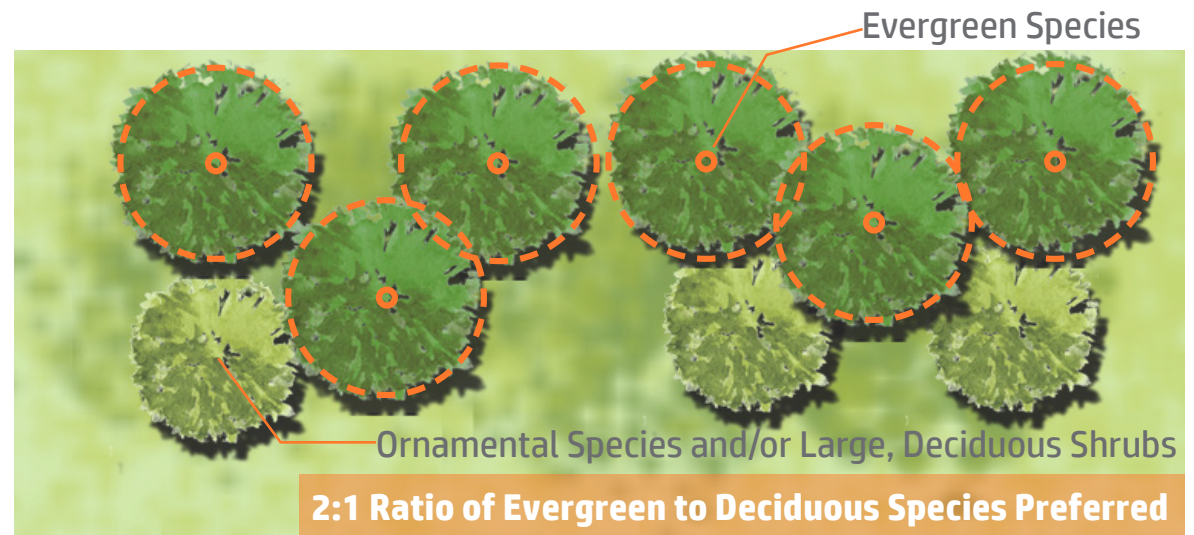
Canaertii Eastern Red Cedar

Evergreen Trees Installation Guidelines

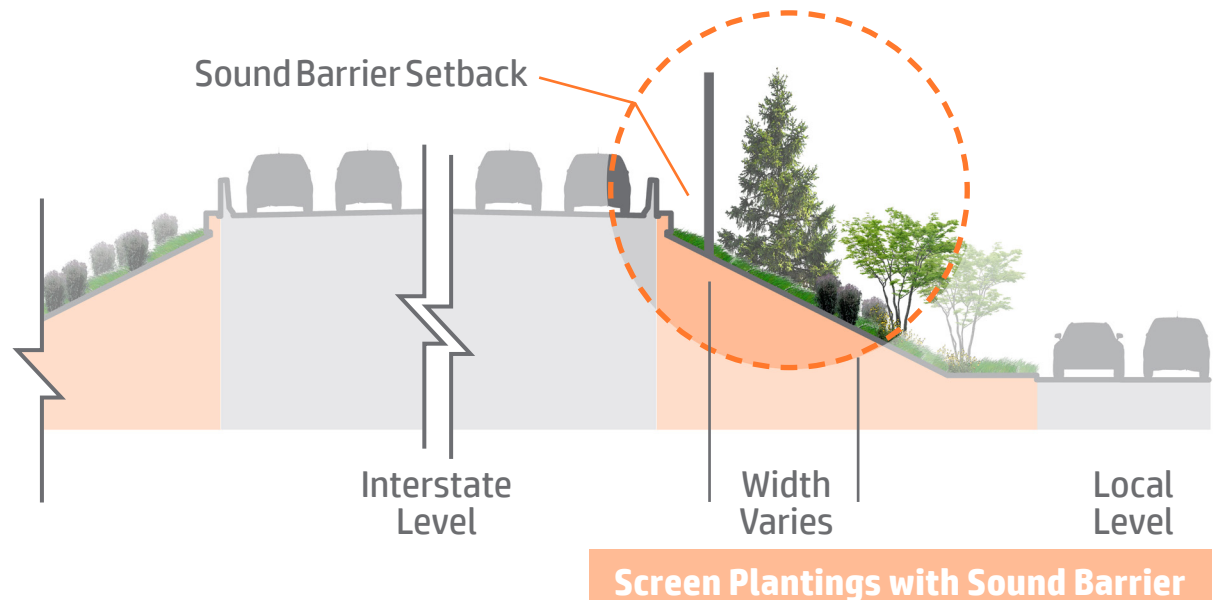
- Trees should be placed so bases do not overhang the buffer-zone.
- Trees should be placed to grow together upon maturation.

TPOLOGY 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.



TYOLOGY 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.

SUGGESTED SEED MIX COMPOSITION:

PRAIRIE SEED MIX

This planting application shall be used in areas within the interchange.

The mix shall include native prairie grasses, sedges and flowering species that provide color throughout the growing season and act as food sources for birds, butterflies and insects with the following composition:

Approximately 20% Permanent Grass/Sedge Species Seed, 10% Forb Species Seed and 70% Temporary Cover Species Seed applied at a rate of approximately 40 PLS (Pure Live Seed) pounds per acre.

NATIVE WILDFLOWER SEED MIX

This planting application shall be used to supplement the *Prairie Seed Mix*, offering more color and diversity in blooming species, particularly during prairie establishment.

It shall include quick-blooming, native wildflowers that are beneficial to native bees and pollinators with the following composition:

100% Flowering Forb Species Seed applied at a rate of approximately 5 PLS (Pure Live Seed) pounds per acre.

Seed Mix Installation Guide

- Protective covering shall be used to protect seed from weather and wildlife.
- Installation recommendations from the supplier shall be followed.



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.

TYOLOGY 5: INTERCHANGE PLANTINGS

Benefits

- Softens the road infrastructure with large, plant massing
- Unifies the interchange with the legs in repetition of seed species
- Minimizes costs associated with mowing and maintenance
- Supports native flora and fauna

SUGGESTED SPECIES:

Shade Trees (applicable to the interchange 'urban forest') **Minimum 2" Caliper, Planted at 15' On-Center**

- Tulip Tree (*Liriodendron Tulipifera*)
- American Beech (*Fagus grandifolia*)
- Black Gum (*Nyssa sylvatica*)
- American Linden (*Tilia americana*)
- Sugar Maple (*Acer saccharum*)
- Red Maple (*Acer rubrum*)
- Honey Locust (*Gleditsia triacanthos var. inermis*)
- Red Oak (*Quercus rubra*)
- American Elm (*Ulmus americana 'Princeton'*)

Ornamental Trees (grouped along the edges of the No-Tree-Buffer-Zones, as shown on the next two pages)

5-6' Tall, Planted at 15' On-Center

- Serviceberry (*Amelanchier x grandiflora*)
- Redbud (*Cercis canadensis*)
- Flowering Dogwood (*Cornus florida*)
- Green Hawthorn (*Crataegus viridis*)

Interchange Tree Installation Guidelines

- Trees should be planted in a grid pattern at a maximum of 15' o.c.
- Trees with messier seeds/fruits are planted further within the interchange.



Tulip Tree



American Beech



Black Gum

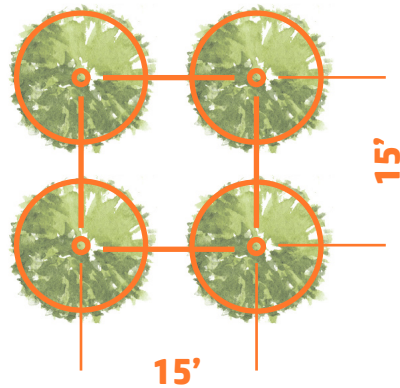


American Linden

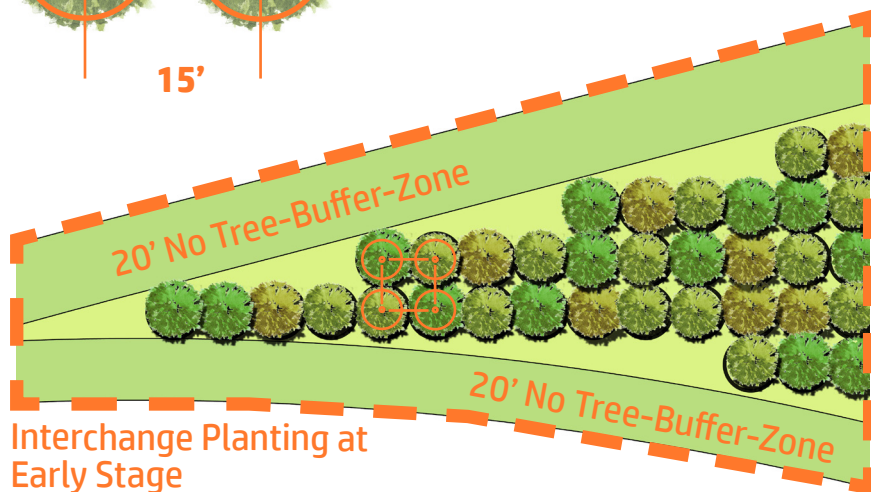


Sugar Maple

TYOLOGY 5: INTERCHANGE PLANTINGS, CANOPY TREES



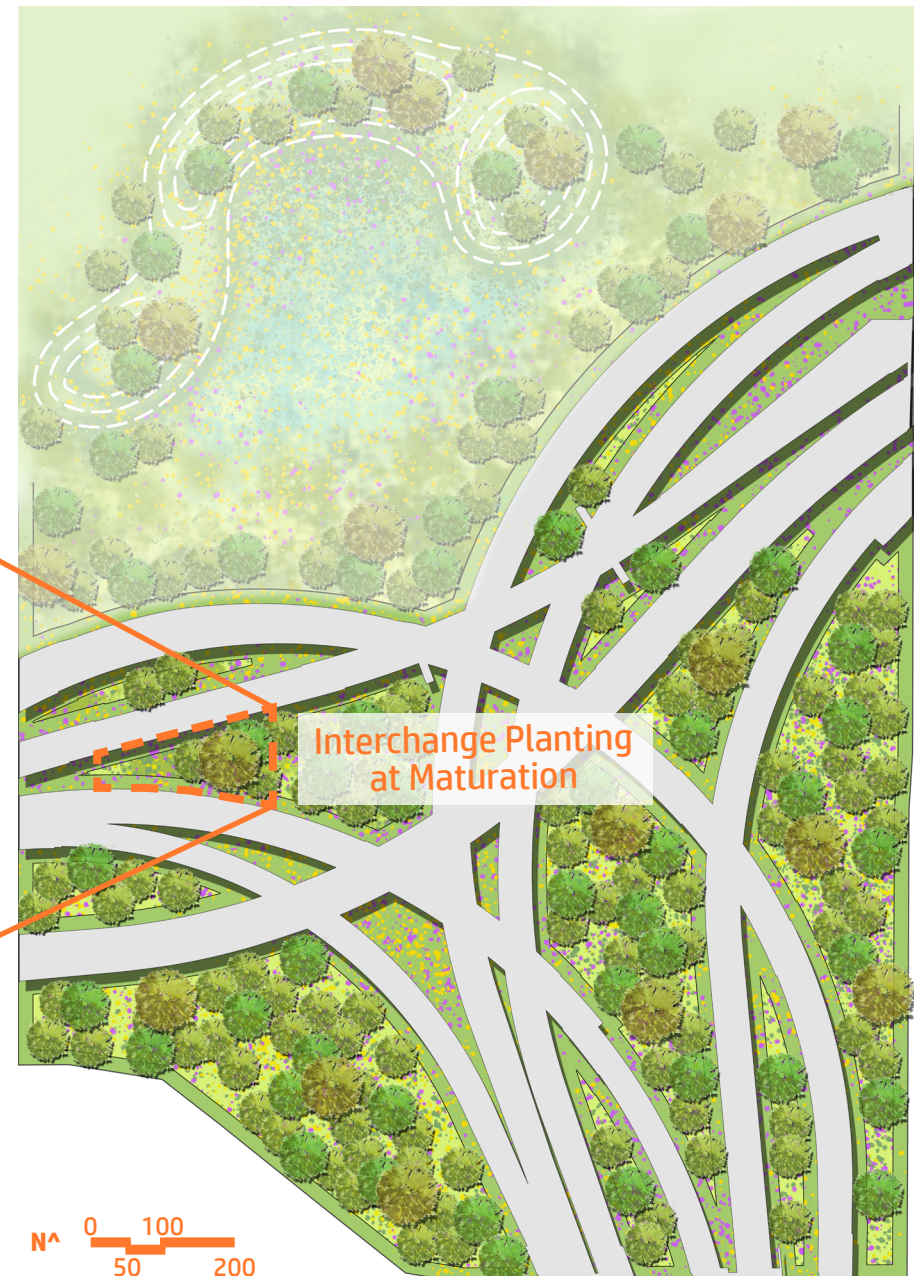
The illustrations to the left and below show the use of a fractured grid pattern for the placement of trees within the interchange.



Interchange Planting at
Early Stage

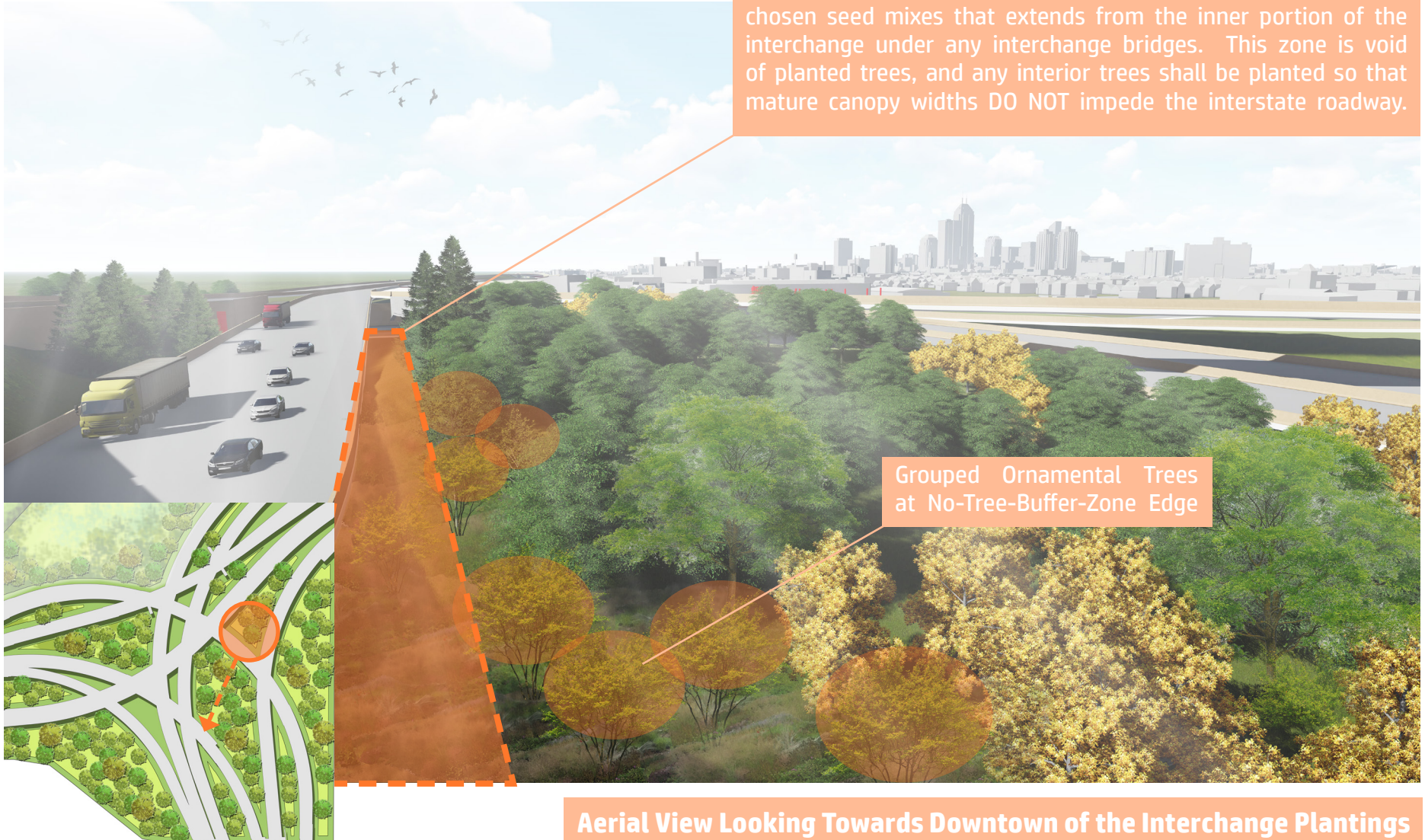
The approach to planting such a space shall be one of restorative quality - planting large quantities in close proximity - where survival of the fittest tree specimen will result in a naturalistic appearance. The interchange planting will follow Keep Indianapolis Beautiful's (KIB) planting standard of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

Canopy Tree Grid Arrangement



TYPOLGY 5: INTERCHANGE PLANTINGS, CANOPY TREES

The 20' No-Tree-Buffer-Zone within the interchange is a similar concept to *Typology 2: 10' Buffer-Zone* seen along the local roadways. This 20' No-Tree-Buffer Zone (occurring along the edge of all interstate roadways) is a continuation of the chosen seed mixes that extends from the inner portion of the interchange under any interchange bridges. This zone is void of planted trees, and any interior trees shall be planted so that mature canopy widths DO NOT impede the interstate roadway.



Grouped Ornamental Trees
at No-Tree-Buffer-Zone Edge

Aerial View Looking Towards Downtown of the Interchange Plantings

TYOLOGY 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.



Cardno
Economy Prairie Seed Mix -
Yellow Coneflower



Cardno
Stormwater Seed Mix -
Crested Oval Sedge

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.



Perkiomen Watershed Conservancy
Naturalized Stormwater Detention Basin

TYOLOGY 6: DETENTION BASIN PLANTINGS

SUGGESTED SPECIES:

Large, Deciduous Shrubs
Minimum 3-Gallon Container, Planted 8' On-Center

- Sandbar Willow (*Salix interior*)
- Gray Dogwood (*Cornus racemosa*)
- Spicebush (*Lindera benzoin*)
- Elderberry (*Sambucus canadensis*)

Shade Trees
Minimum 2" Caliper, Planted at 15' On-Center

- Bald Cypress (*Taxodium distichum* var. *distichum*)
- Swamp White Oak (*Quercus bicolor*)
- Black Willow (*Salix nigra*)
- Pin Oak (*Quercus palustris*)



Sandbar Willow



Gray Dogwood



Spicebush



Elderberry



Bald Cypress



Swamp White Oak

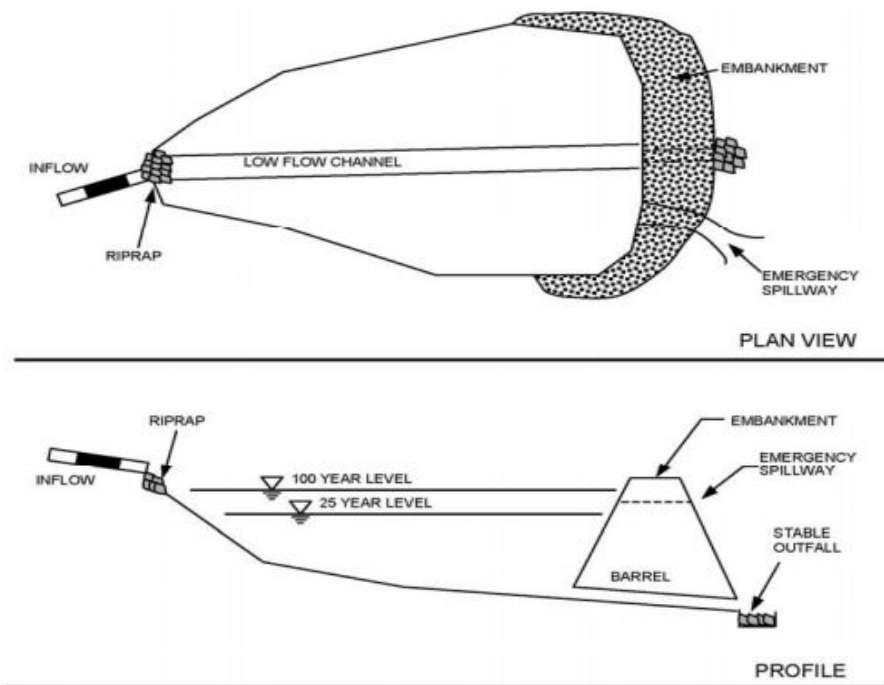


Black Willow



Pin Oak

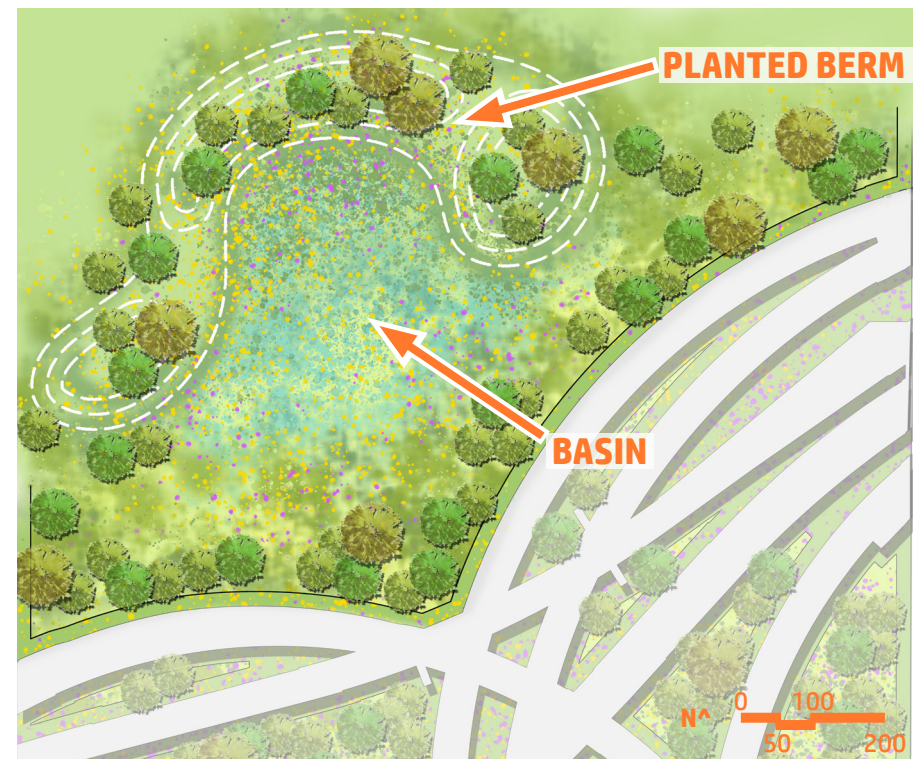
TYOLOGY 7: DETENTION BASIN PLANTINGS



Source: Georgia Stormwater Managment Manual, 2001

The conceptual details above show an overview of how such a basin would be arranged. The area north of the interchange - space gained through the shrinking footprint of the new design - provides a perfect location for this to occur. A sculpted berm can provide aesthetic and functional value in the separation of the basin from public activities of the Frank & Judy O'Bannon Soccer Park.

Detention Basin Conceptual Design



University of Illinois
Planted Dry- Detention Basin