INGERSOLL STREETSCAPE
phasing study

DESIGN DEVELOPMENT SUMMARY REPORT

CONFLUENCE

Bishop Engineering

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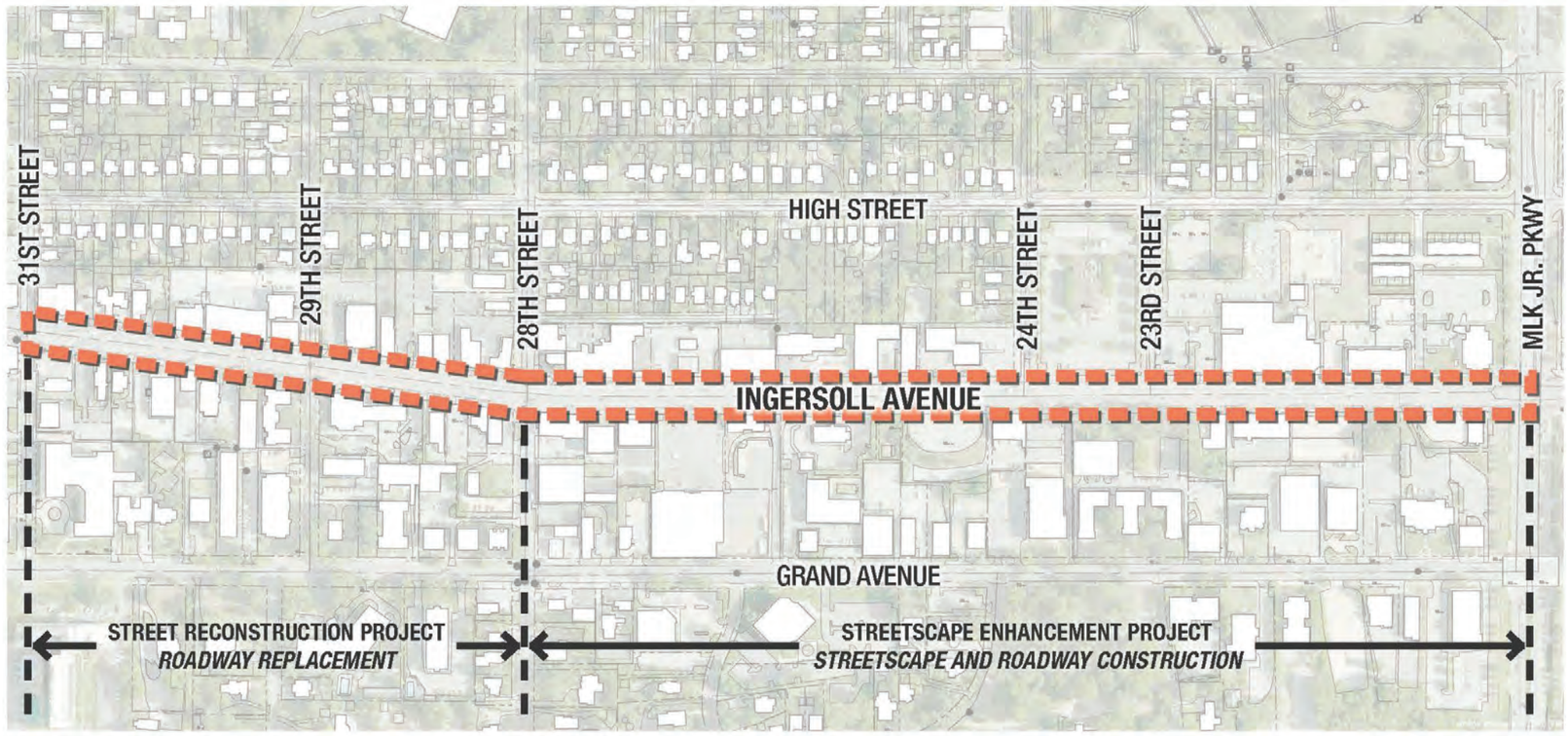
Ingersoll Avenue - Pilot Project Streetscape Amenities

overview



The following document provides an overview summary of the Ingersoll Avenue Streetscape Phasing Study, a planning and phasing study for the continuation of the Ingersoll Avenue Streetscape in Des Moines, Iowa. The project's planning area includes two distinct sections - full streetscape and roadway design from Martin Luther King Jr. Parkway to 28th Street, and a modified roadway layout for street reconstruction from 28th Street to 31st Street. Existing streetscape amenities between 28th to 31st Streets will be maintained.

The initial pilot project streetscape, a Hoerr-Schaudt design, included pedestrian-oriented amenities from 31st Street to 28th Street and was completed in 2009. Future phases of the streetscape construction follow design standards set forth in the original project, with some modifications based on evaluation of the existing streetscape, maintenance programs, and city-wide complete street goals.

The following document reflects decisions made collaboratively by the Ingersoll Avenue SSMID committee members, City of Des Moines staff, Des Moines Area Regional Transit Authority (D.A.R.T.) representatives, and the design team. Design direction established herein should be carried forth in final design drawings for the next phases of streetscape construction, and are reflected in the drawings and cost estimate accompanying this report.

CORE OBJECTIVES

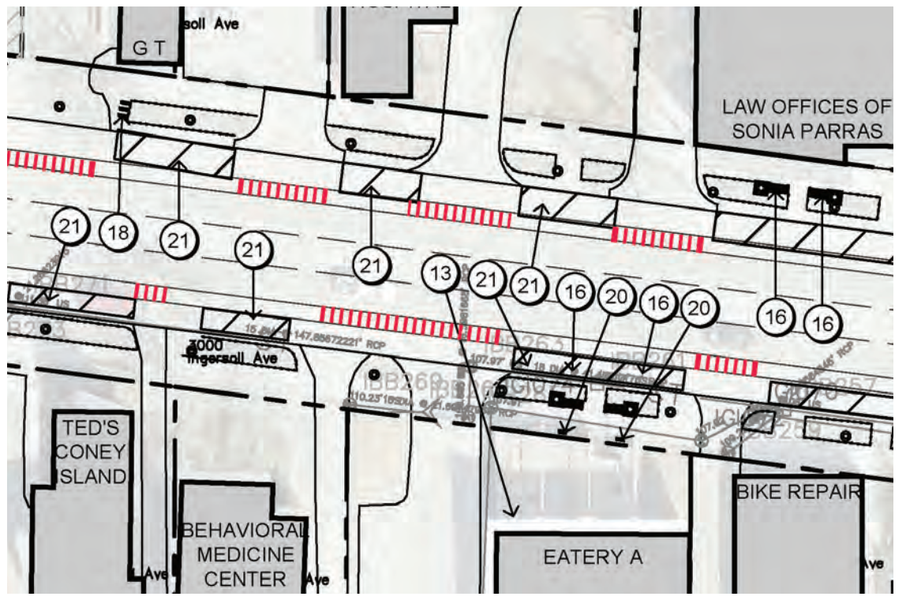
- Overhead Utilities - Bury overhead utilities lines throughout.
- Complete Streets - Integrate protected bike lanes, enhanced pedestrian crossings, and preferred mass transit shelter locations/ configurations in roadway layout.
- Parking - Consider parking needs for the corridor, and accommodate longer stretches of on-street parking where feasible.
- Local Coordination - Plan coordinates with current and future utility and construction projects along Ingersoll Avenue.

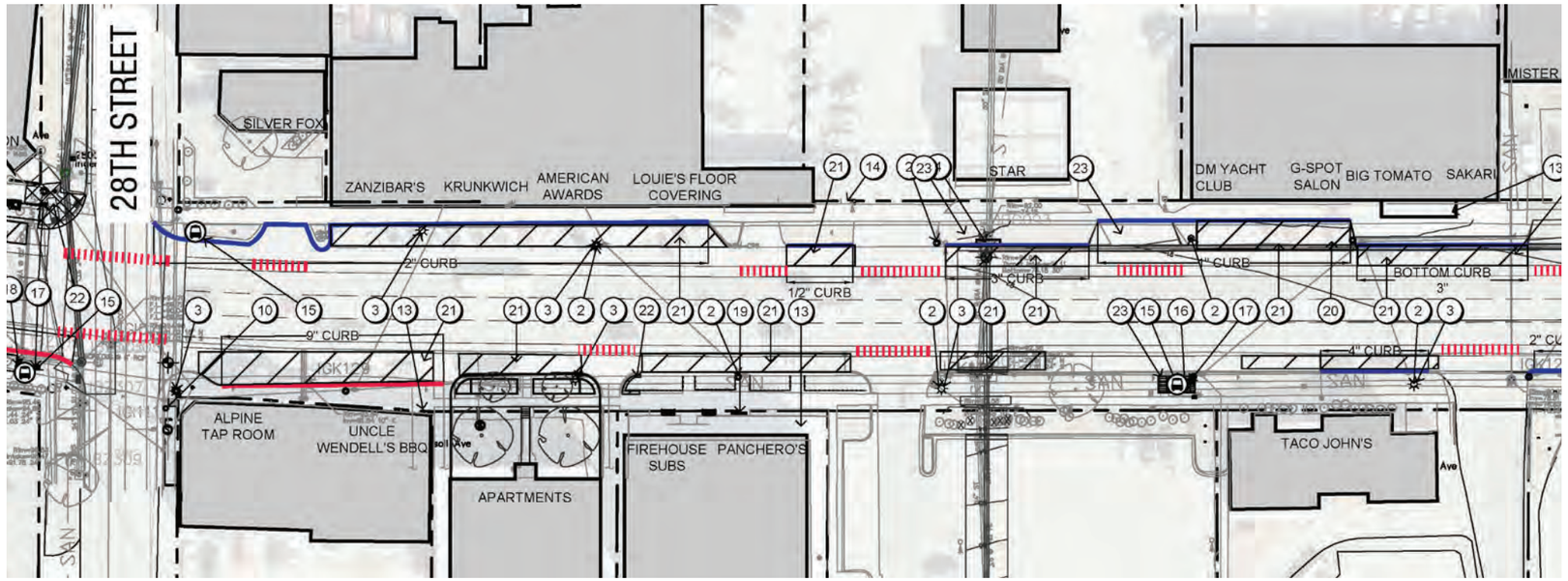
Ingersoll Avenue - Site Inventory Images

site inventory

LEGEND

1. UTILITY IN POOR CONDITION
2. LIGHT POLE
3. POWER LINE
4. STORM INTAKE
5. ABANDONED MANHOLE
6. CHANNEL DRAIN
7. CABLE BOX
8. COMM. BOX
9. WATER
10. FIRE HYDRANT
11. RETAINING WALL
12. RETAINING WALL - IN POOR CONDITION
13. OUTDOOR SEATING / DINING
14. LIGHTING BY OWNER
15. BUS STOP
16. BENCH
17. TRASH CAN
18. BIKE RACK
19. BIKE RACK - INCORRECT INSTALLATION
20. BIKE RACK BY OWNER
21. ON STREET PARKING
22. CONCRETE IN POOR CONDITION
23. EXISTING BUS STOP SHELTER
24. PLANNED BUS STOP SHELTER





Inventory Notes

A detailed inventory was performed to map various streetscape features along Ingersoll Avenue, and to assess their current condition. The inventory included the completed pilot project streetscape (from 28th Street to 31st Street) and the next phase of streetscape construction from Martin Luther King Jr. Parkway to 28th Street.

PILOT PROJECT (28TH - 31ST)

- Concrete - Several locations of cracking concrete, inconsistent sawcut details throughout.
- Planter Railings - Many railings have been damaged or removed, especially on the roadway side. Curved sections are missing on newer construction and concrete curbs are cracking due to an inadequate embed detail. Missing sections leave unsightly holes in the curbs.
- Seating Group Layout - Site furnishings appear to be in good condition. Seating areas are facing away from the roadway, in many cases towards walls or storefronts.
- Bike Racks - Bike racks are installed inconsistently, in many cases causing bikes to protrude into the walkway.
- Lighting - Pedestrian light fixtures appear out-of-scale at their current height. Conflicts with street trees were also observed.
- Landscape - See page 23 for landscape observations + recommendations.

NEXT PHASE (MLK JR. PKWY - 28TH)

- Curb heights - Varying curbs heights were observed.
- Utilities - Crossing overhead utility lines throughout.
- On-street parking - Varying stall dimensions and non-conforming angled parking.

Existing Overhead Utility Lines
(Top - Consolidated Utilities in Pilot Project, Bottom - Existing lines on Future Phases)

Proposed LED Roadway Lighting with Banner Arm Attachments

The removal of overhead utility lines and upgrade of utility and lighting infrastructure are key components to improving the aesthetics and function of the corridor and its businesses.

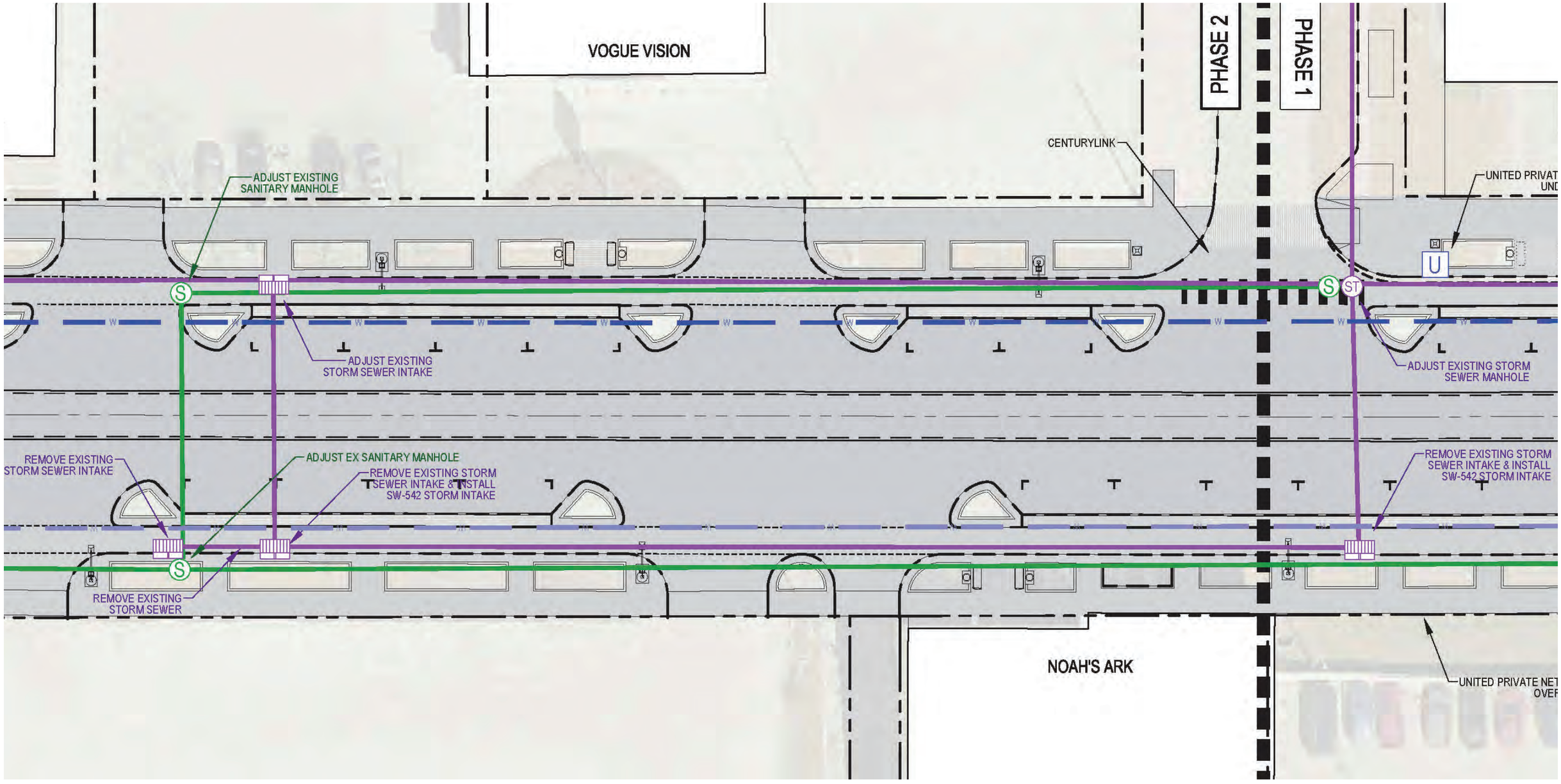
REMOVAL OF OVERHEAD UTILITIES

A primary goal of this study is to plan and account for the burial of overhead utilities along the corridor. The layout and phasing plans that accompany this report, as well as the associated cost estimate, assume all overhead utilities will be buried for the entire length of the next phase of streetscape construction (from MLK Jr. Pkwy to 28th Street). Close coordination with MidAmerican Energy will be essential during final design, and budgetary pricing for this task is included as a base item in the cost estimate.

Currently, several service providers in the area have lines on the MidAmerican poles. It's planned that UPN, Windstream, and Mediacom will all move off the poles and relocate underground. CenturyLink has an existing underground duct system that may need to be moved due to the street widening. It is understood that these utility providers will carry the burden of any cost for relocation since this is a City improvement project.

LED STREET LIGHTING

All proposed roadway lighting in the next phase of the Ingersoll streetscape will be LED. See plan sheets for proposed street light layout - poles are spaced at 80-90', alternating across the street to meet required light levels for a minor arterial street (0.9 fc ave, 3:1 uniformity). All fixtures will be Autobahn fixtures by AEL Lighting, mounted on 30' poles with concrete footings. Each pole includes banner arm attachments. All poles to be powdercoated black.



Proposed Utility Plan Example (Sheet C304)

Known Utilities To Be Relocated

- Existing storm sewer intakes – adjusted for new road width
- Existing watermain abandoned and moved to north side of road
- Mid-American power lines on poles to be moved underground
- UPN lines on poles to be moved underground
- Windstream lines on poles to be moved underground
- Mediacom lines on poles to be moved underground
- CenturyLink lines in duct behind existing curb may need to be relocated depending on depth and exact location
- Gas service is not anticipated to be relocated, however some conflict points are anticipated

Existing Utility Elements

Many utilities are located along Ingersoll Avenue, and close coordination with various providers has been an instrumental part of this study.

WATER MAIN UPGRADES

Des Moines Water Works will be installing a new watermain on the north side of Ingersoll. The existing watermain on the south side of Ingersoll will be abandoned. This work will be done in conjunction with Phases I and II and will be paid for by Des Moines Water Works. In order to perform this work, the north curb line, north parking, and a portion of the westbound travel lane will be removed.

STORM SEWER

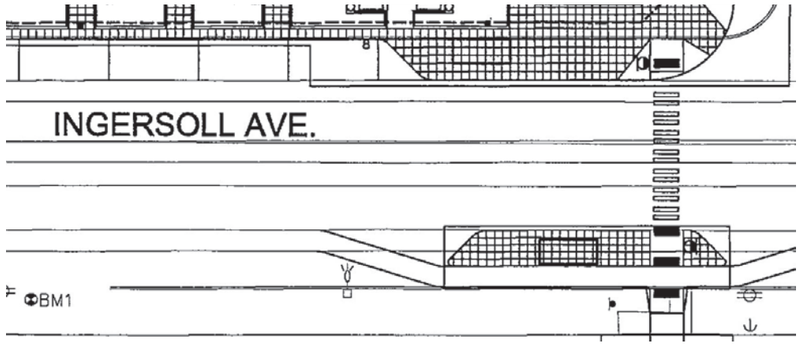
The existing storm sewer system will require adjustments and improvements due to the proposed road widening. Additional storm sewer runs will be installed to capture proposed driveway trench drains, new intakes, and planter subdrains. Storm sewer construction associated with the project will directly tie into existing storm sewer as well as new storm sewer being installed as part of 2017 sewer separation project.

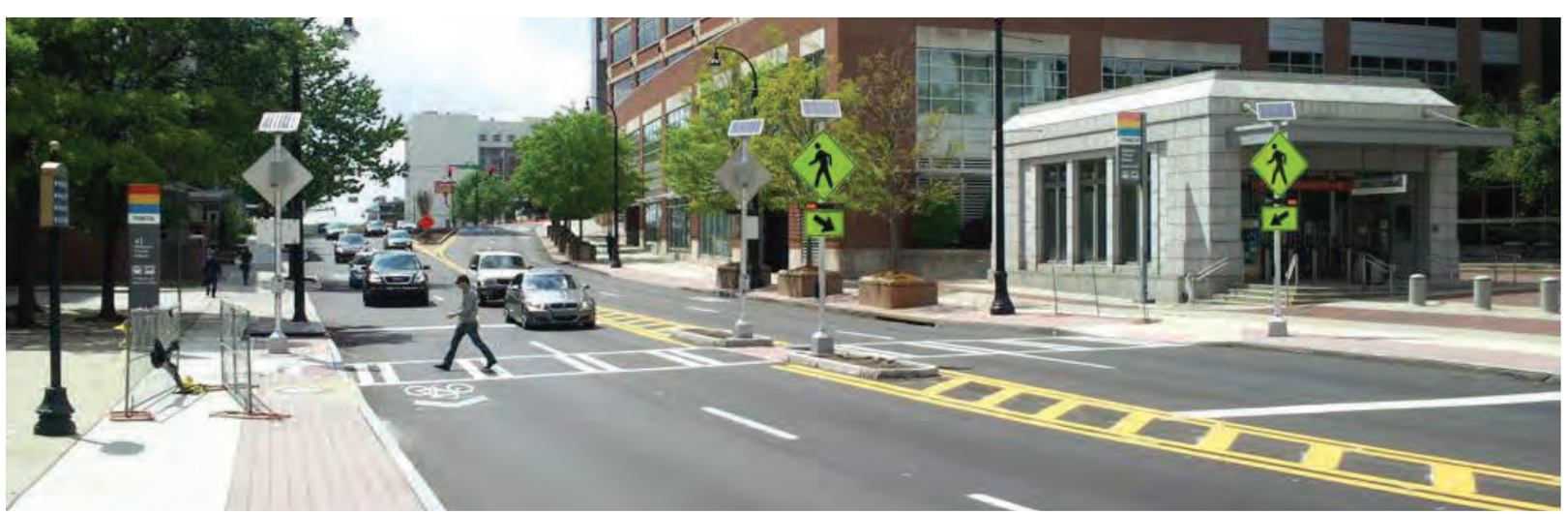
SANITARY SEWER

There are no plans during this project to replace existing sanitary service lines in the area. At a minimum, there are numerous locations throughout the project where sanitary manholes will need to be adjusted to fit new roadway elevations. It is possible during construction, based on condition of the existing sanitary line, that portions of the sanitary line may need to be replaced.

SANITARY SEWER

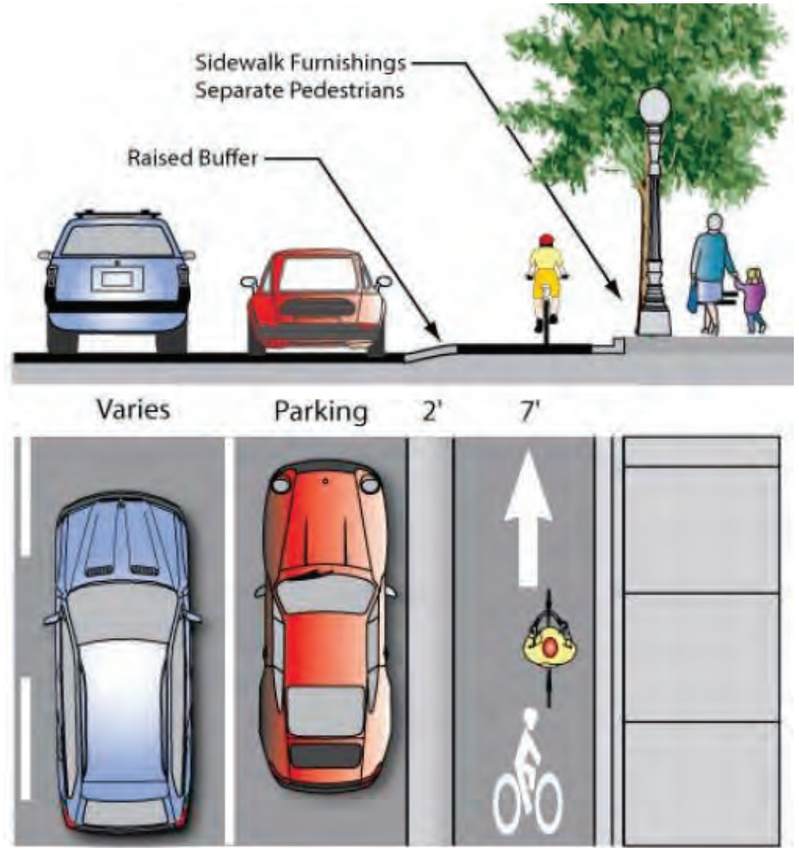
Currently, several service providers in the area have lines on Mid-American's poles. It's planned that UPN, Windstream, and Mediacom will all move off the poles and relocate underground. CenturyLink has an existing underground duct system that may need to be moved due to the street widening. It is understood that these utility providers will carry the burden of any cost for relocation since this is a City improvement project.





Back-in Angled Parking - Pavers at Pedestrian Crosswalks - Signaled Pedestrian Crossings

D.A.R.T. Bus Shelters on Raised Islands



Des Moines Bicycle and Trail Master Plan, Alta Planning + Design, June 2011

Protected Bike Lanes (Cycle Tracks)

The proposed roadway alignment for the next phases of the Ingersoll Avenue streetscape follows a complete streets approach - encouraging comfortable and safe interactions between pedestrians, bicyclists, and motorists, while improving access to mass transportation and supporting local land uses along the corridor.

PROTECTED BIKE LANES (CYCLE TRACKS)

Creating protected bike lanes was a goal established early in this project's process, and several other protected bike lane projects underway in the metro area - one of which is immediately across MLK Jr. Pkwy, east of the project area.

ENHANCED PEDESTRIAN CROSSINGS

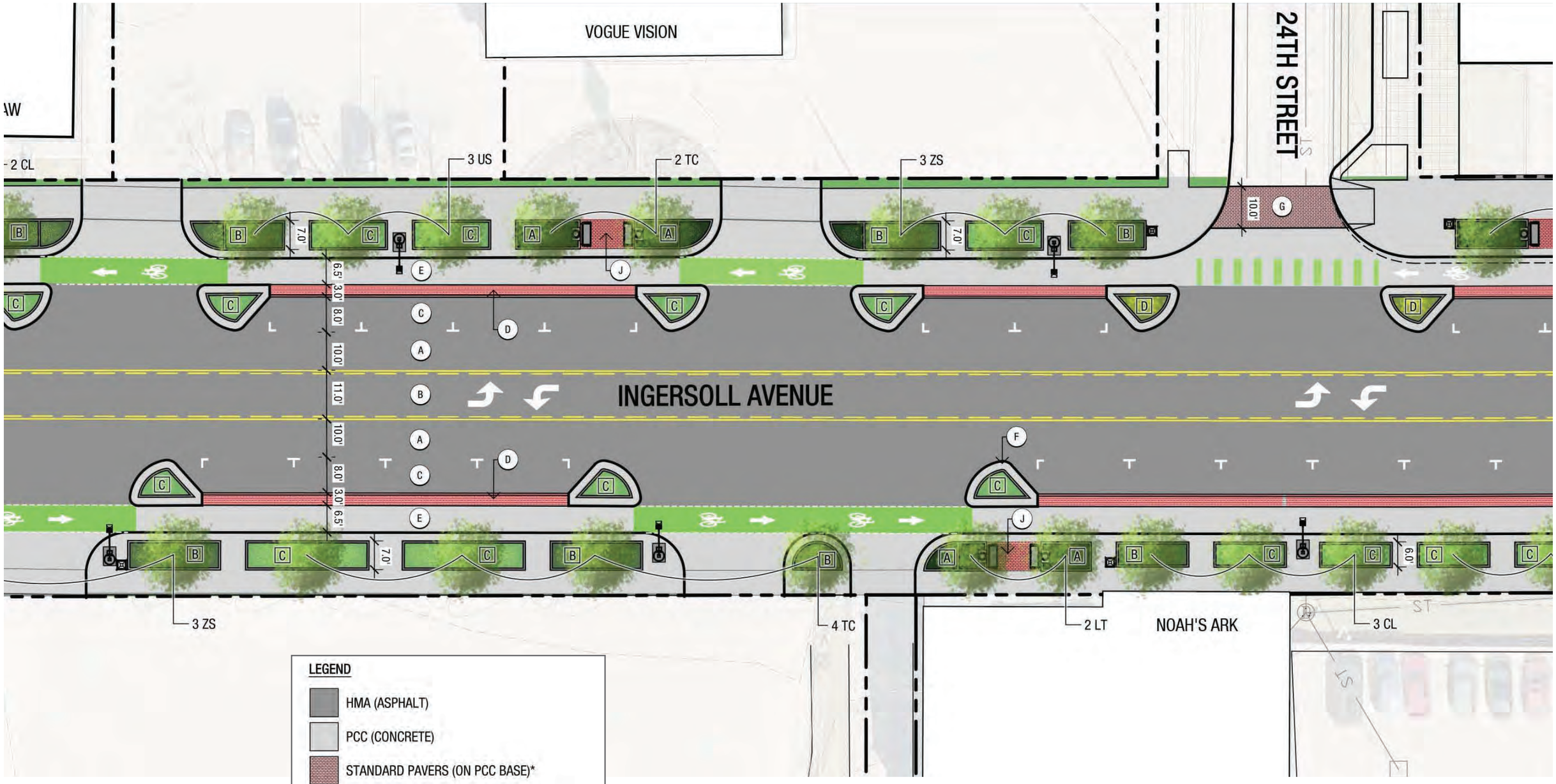
Two (2) additional mid-block pedestrian crossings were added to improve pedestrian circulation across Ingersoll. All crosswalks should be pavers, or another alternate material, sufficient to contrast both in color and texture with the adjacent roadway. Each new mid-block crossing will be signalized utilizing rectangular rapid flash beacons (RRFB).

NEW BUS SHELTERS (D.A.R.T.)

All D.A.R.T. bus stop locations are to receive new full-size shelters along Ingersoll. Many bus stop locations along the corridor will be relocated, and each stop is located on raised concrete islands in the roadway.

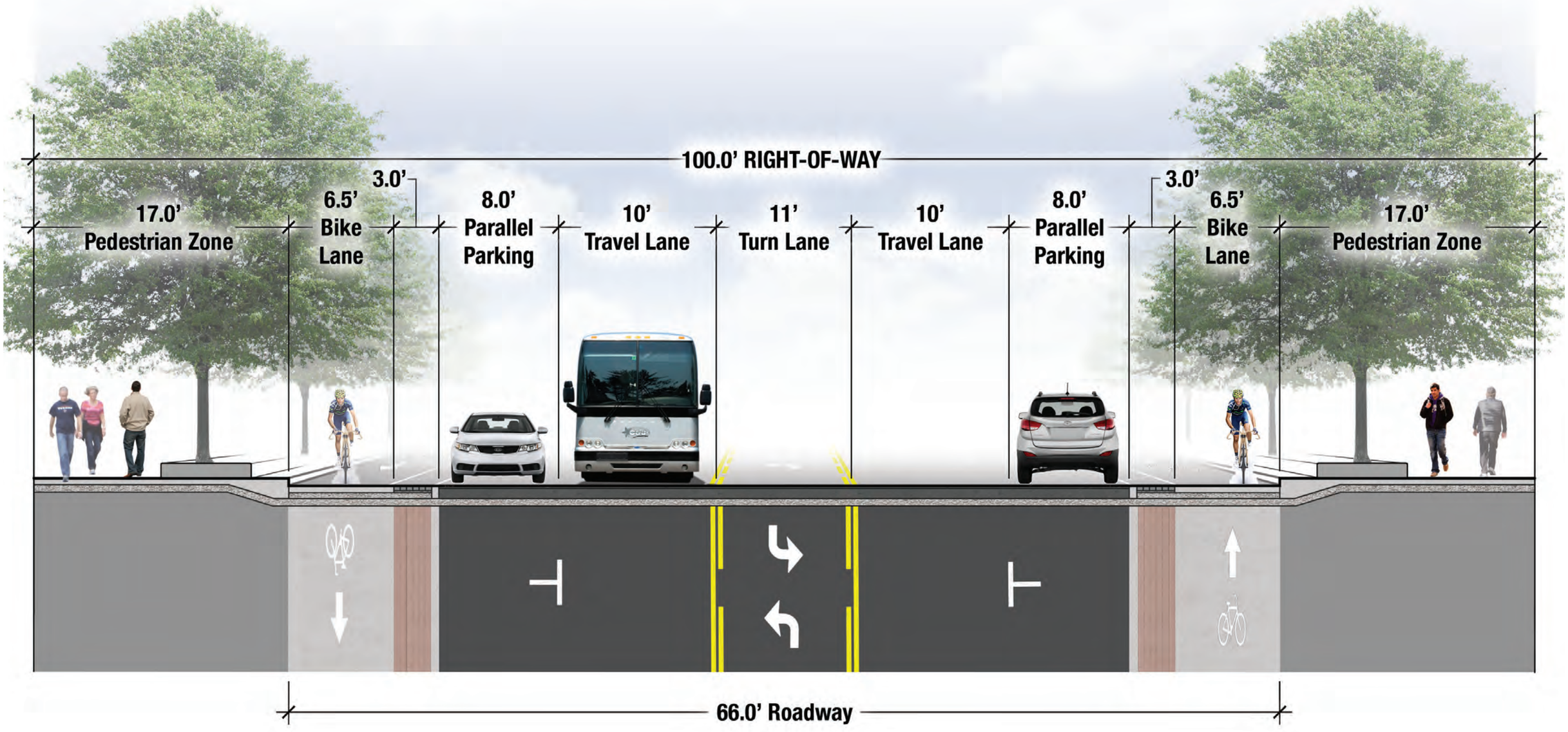
ON-STREET PARKING

Existing parking quantities were maintained to the extent possible, especially in areas adjacent to businesses. Per City of Des Moines standards, all diagonal parking along the street was converted to back-in angled stalls to improve visibility for motorist and bicyclists.

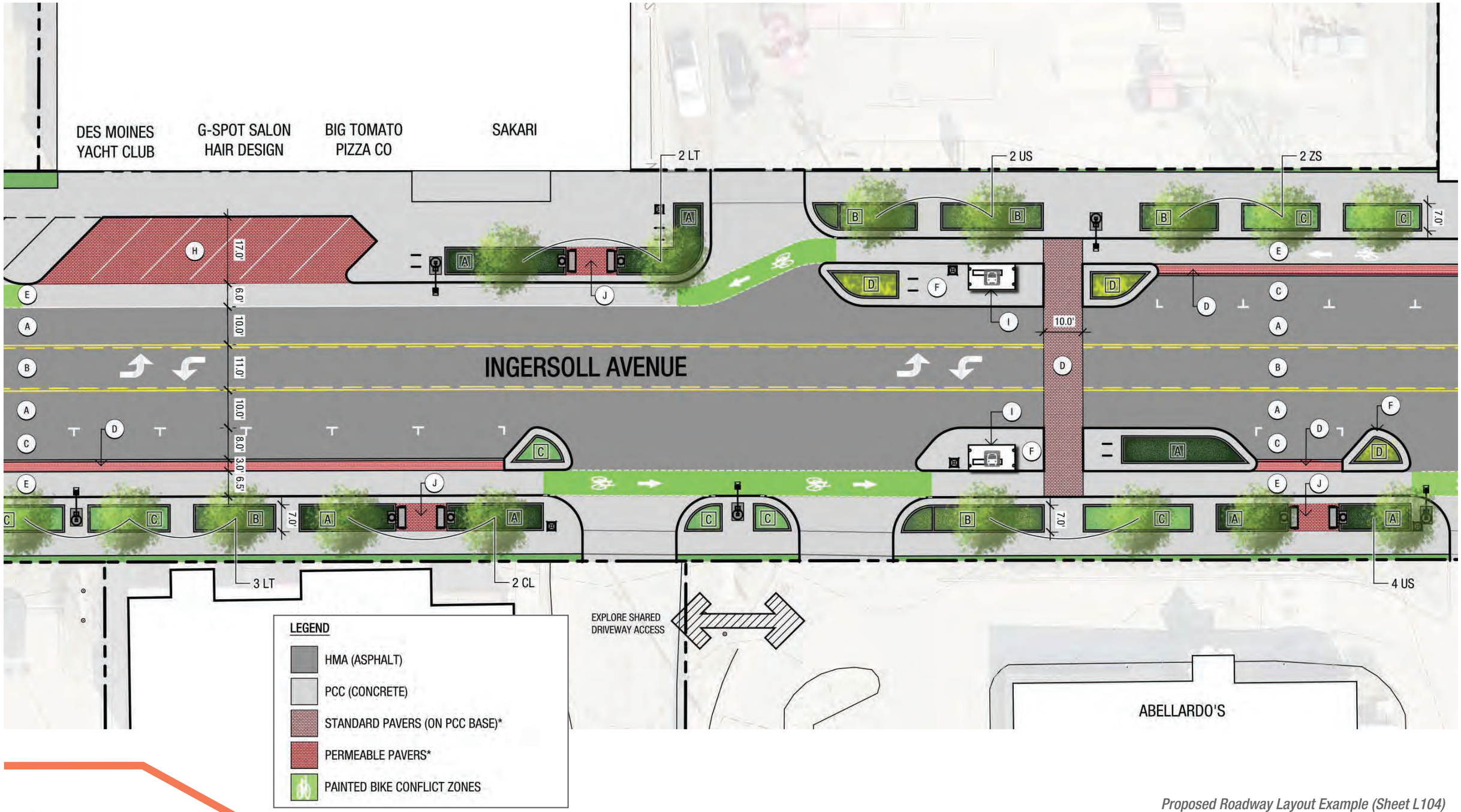


Proposed Roadway Layout Example (Sheet L103)

roadway layout



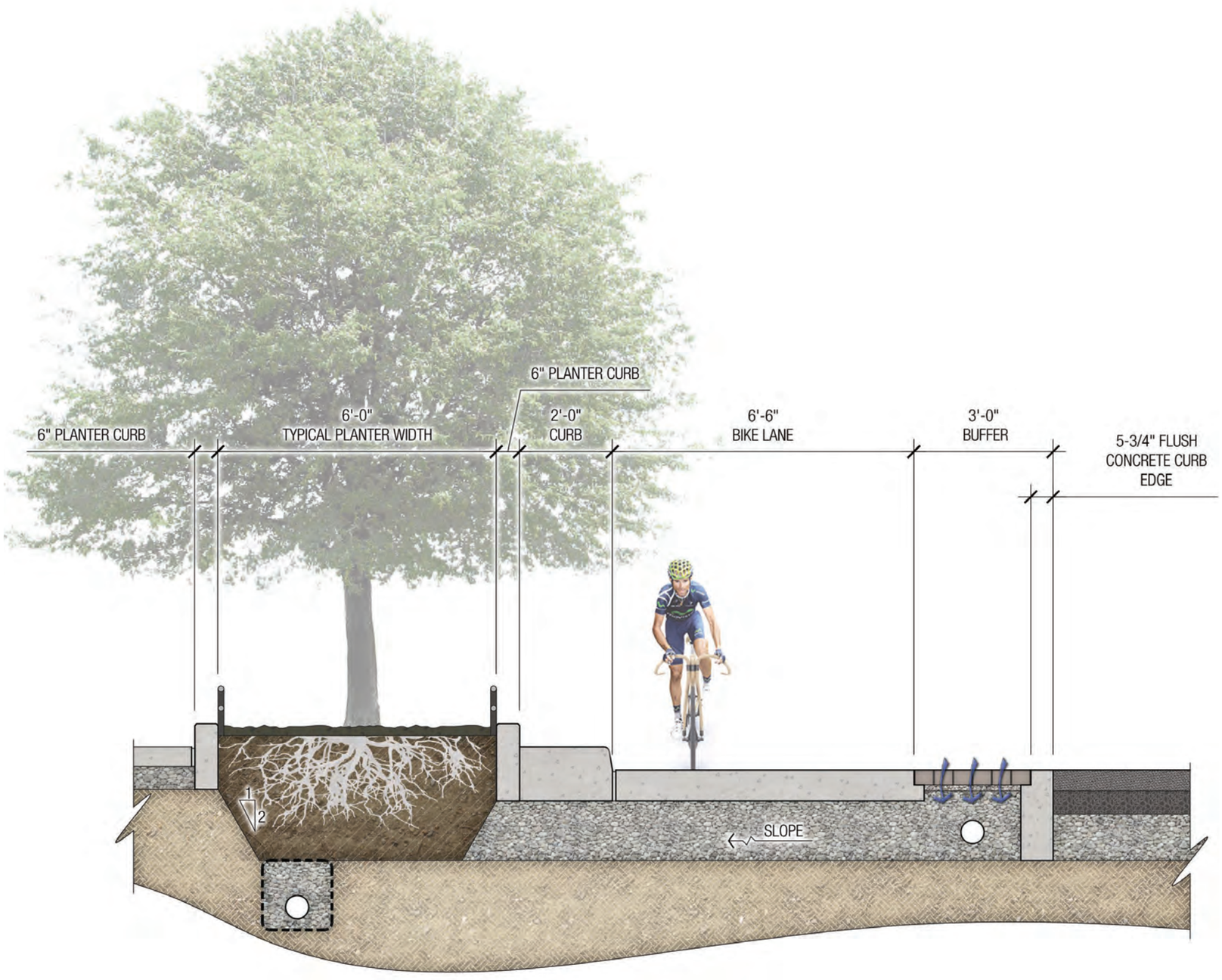
Proposed Roadway Section - MLK Jr. Pkwy to 28th Street



Proposed Roadway Layout Example (Sheet L104)

roadway layout

The proposed roadway section for the next phase of streetscape construction (see page 13) was developed in accordance with the City of Des Moines design standards and in close coordination with City staff. The center turn lane dimension remains as it is today (11') with the two travel lanes narrowing by one foot (10'). Overall roadway dimensions are slightly wider than the existing roadway to accommodate protected bike lanes and buffer zones.



Proposed Streetscape Section - Bike Lanes + Permeable Paver Buffer

PERMEABLE PAVER BUFFER

A three foot wide buffer zone is proposed between the asphalt roadway surface and concrete bike lane. This buffer serves two functions - to act as a visual and textural change for motorists and bicyclists alike, while also capturing stormwater runoff from the street. This strip of permeable pavers along parallel parking stalls is intended to improve stormwater retention along the roadway and eliminate the need for vertical traffic delineators between bikes and motorists.

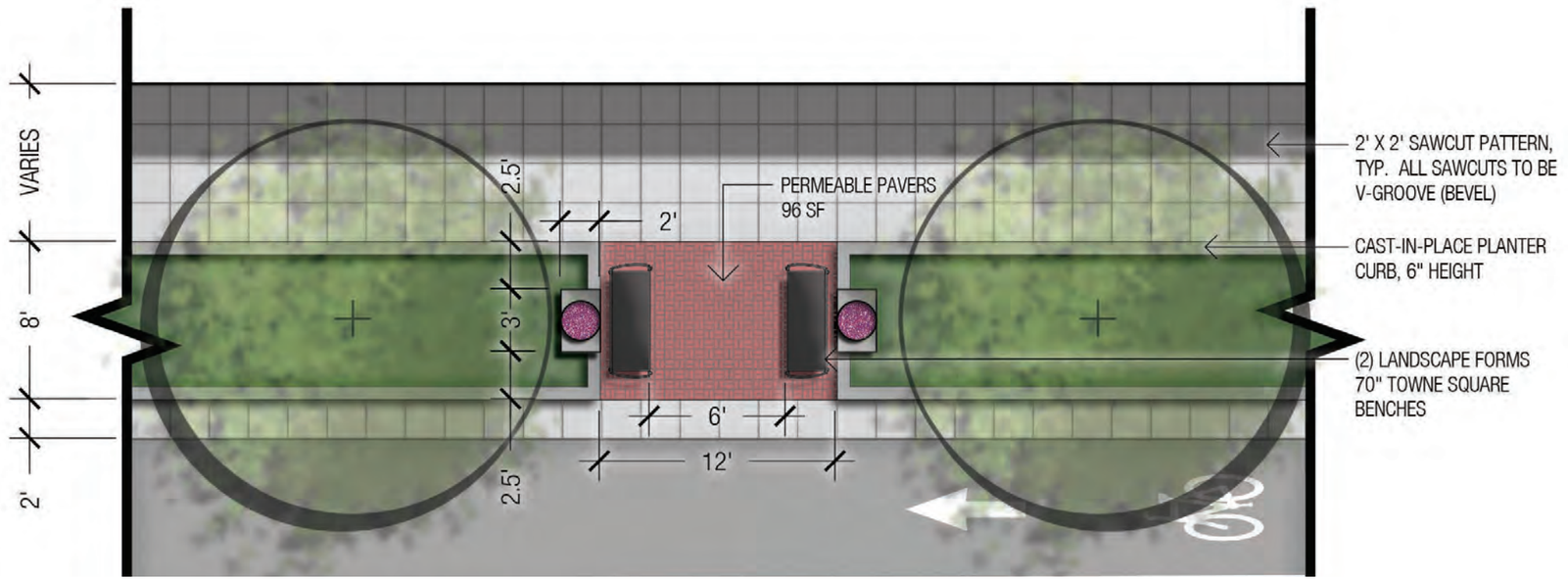
- Product: Eco-priora Permeable Pavers by Unilock
- Pattern / Color: Running Bond / Color TBD

RAISED ISLANDS

Raised concrete islands along the roadway provide protection for on-street parallel parking, and move parked cars away from driveways and intersections, improving visibility for turning cars. These islands provide opportunities for landscape in the roadway, in some cases annual beds, which will highlight bus stop locations and further separate bicycle and vehicle traffic.

Proposed Modified Seating Prototype

streetscape enhancements



Design details for the various streetscape amenities in the pilot project streetscape were evaluated as a part of this study. The following recommendations to modify existing design standards pertain to all future phases of streetscape construction on Ingersoll Avenue.

MODIFIED SEATING PROTOTYPE

A modified layout for seating areas is proposed on the new phases of streetscape. Site furniture remains consistent with the pilot project. Permeable pavers are proposed in these areas, which will help capture stormwater along the street, and match the look and feel set forth in the pilot project. These pavers can also provide an opportunity for future donor recognition if desired.

The revised seating prototype turns benches to face one another, improving interaction between pedestrians on the streetscape. This also improves visibility for motorists into the pedestrian zone, and allows people to sit and view the roadway - a much more inviting approach. Because of the reorganization of the roadway, pedestrians will be seated more than 17’ away from the nearest travel lane.

Site Furniture + Materials Summary:

- Benches: Landscape Forms Towne Square 70” long backed bench with Ingersoll Logo. Surface Mount, Perforated seat panel. Powdercoat black.
- Litter Receptacles: Landscape Forms Presidio Litter. Side opening, 30 gal. capacity. Powdercoat black.
- Bike Racks: Landscape Forms Bola Bike Rack. Embedded, steel bar added between legs for visually impaired, Powdercoat black.
- Concrete Planters: Longshadow 36”x24” International Model.
- Pavers: Unilock Eco-priora Permeable Pavers. Basket Weave Pattern, color TBD.*
- Planter Railings: Custom module (see page 18-19)*

*modified specification/detail from pilot project

Proposed Modified Planter Railing Illustration

streetscape enhancements

Design details for planter railings in the pilot project streetscape were evaluated as a part of this study. The following recommendations to modify existing design standards pertain to all future phases of streetscape construction on Ingersoll Avenue.

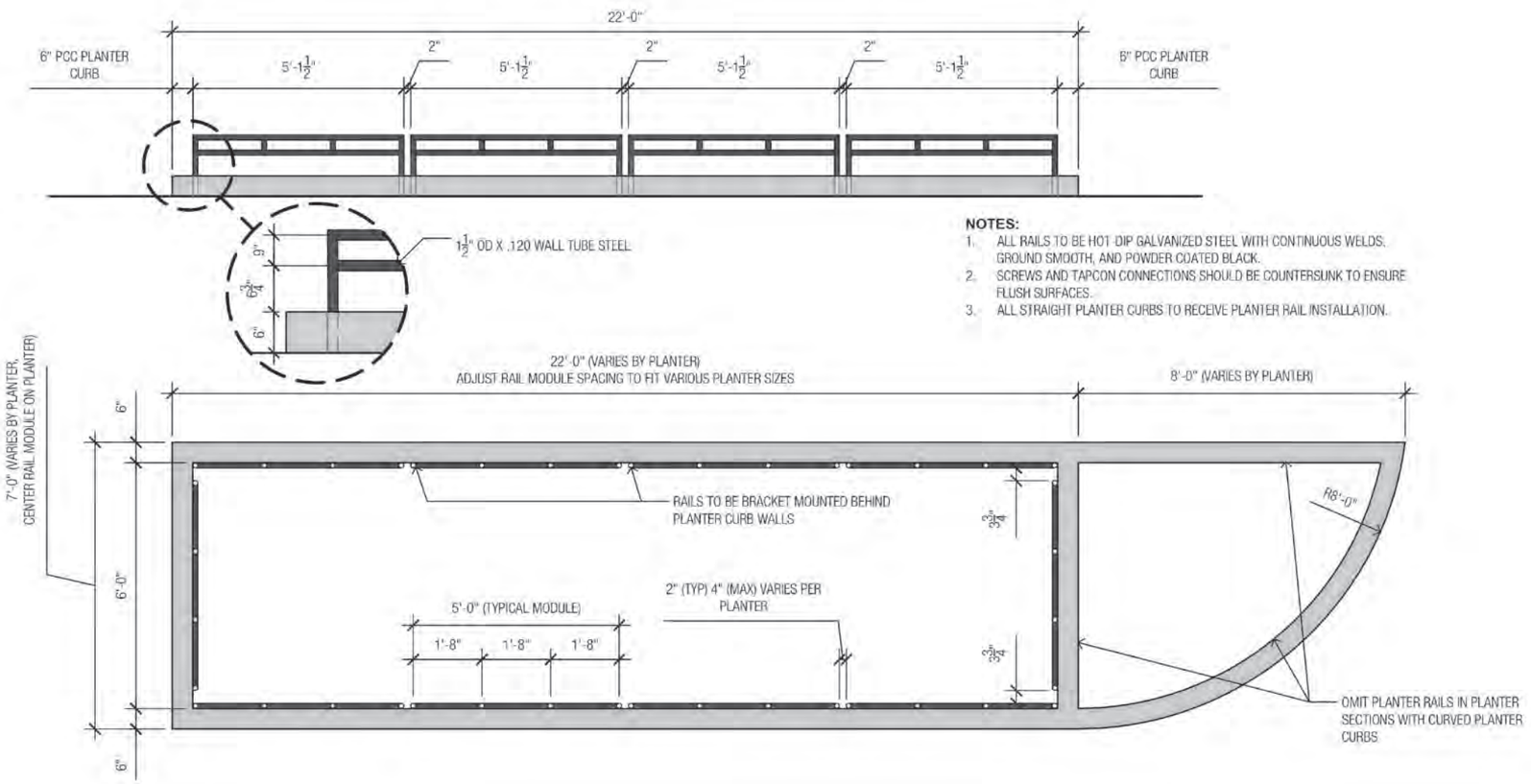
PLANTER RAILINGS

Proposed planter railings on the next phases modify the existing standard to mitigate issues observed in the pilot project and discussed in meetings with stakeholders - the modified railing detail addresses the following directives:

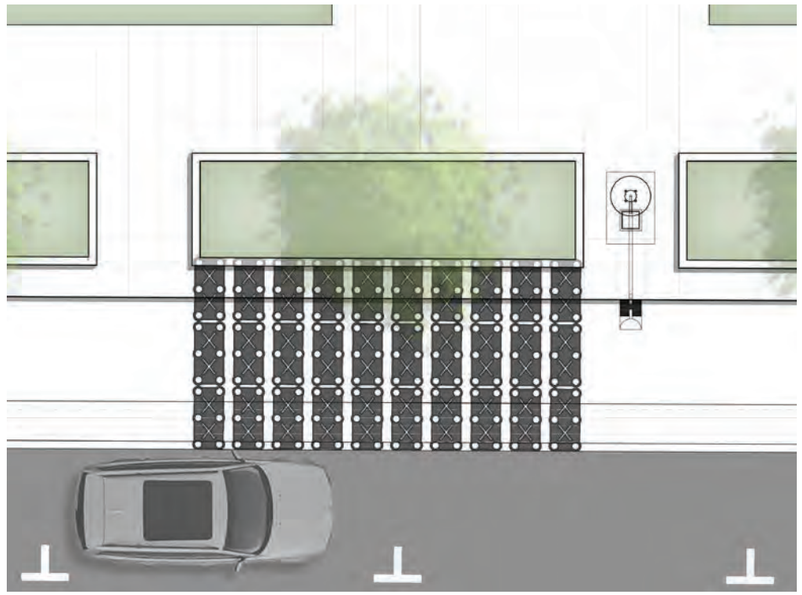
- Modify attachment details to concrete curbs (remove embed)
- Remove curved vertical protrusions on rails
- Remove curved sections of railing (expensive to replace)
- Standardize railing module for long term maintenance/replacement

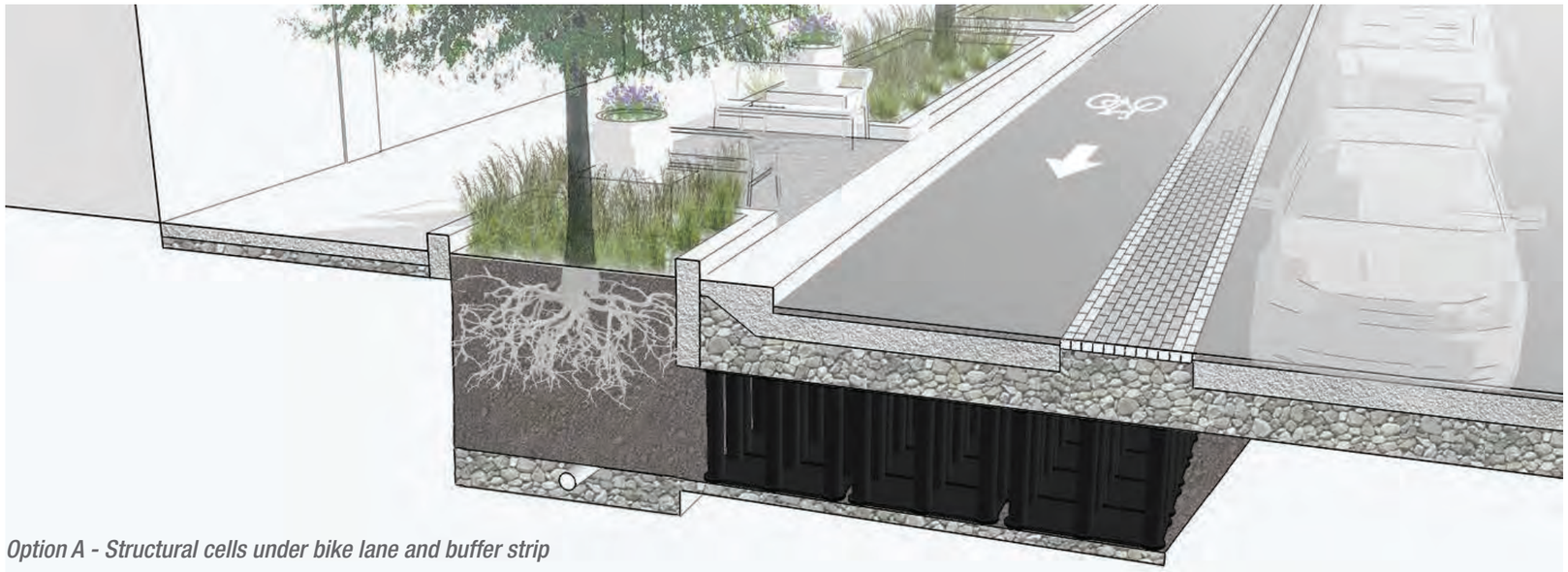
The preferred railing prototype shall be applied to all future planters along Ingersoll. Rails are attached to the inside face of planter curbs via through bolts and simple metal brackets, which allows rails to be easily removed and replaced as needed in the future.

During final design, planters along the streetscape should be standardized to the extent possible to allow for a consistent quantity and spacing of the planter railing module, and to minimize the need for non-standard sizes. These modules can be spaced out at varying dimensions if needed to adjust to minor variations in planter dimensions. No railings shall be installed on curved sections of the planters.

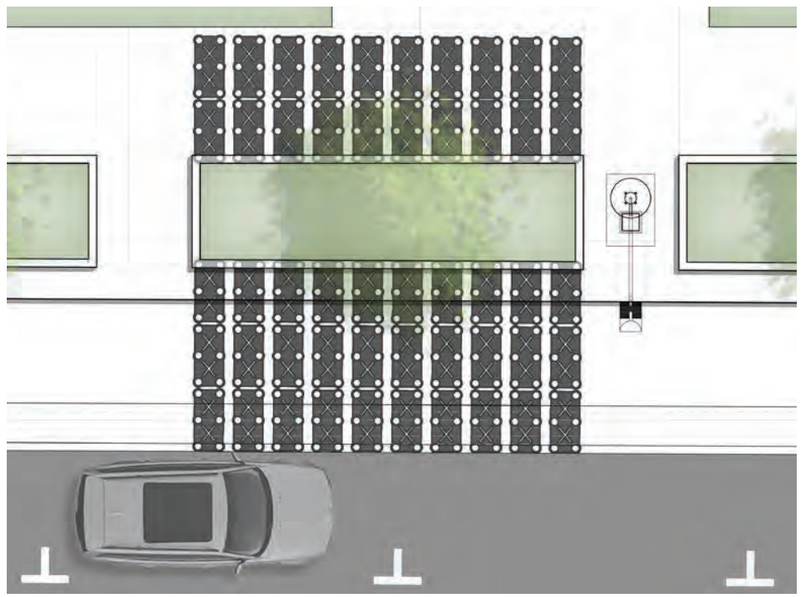


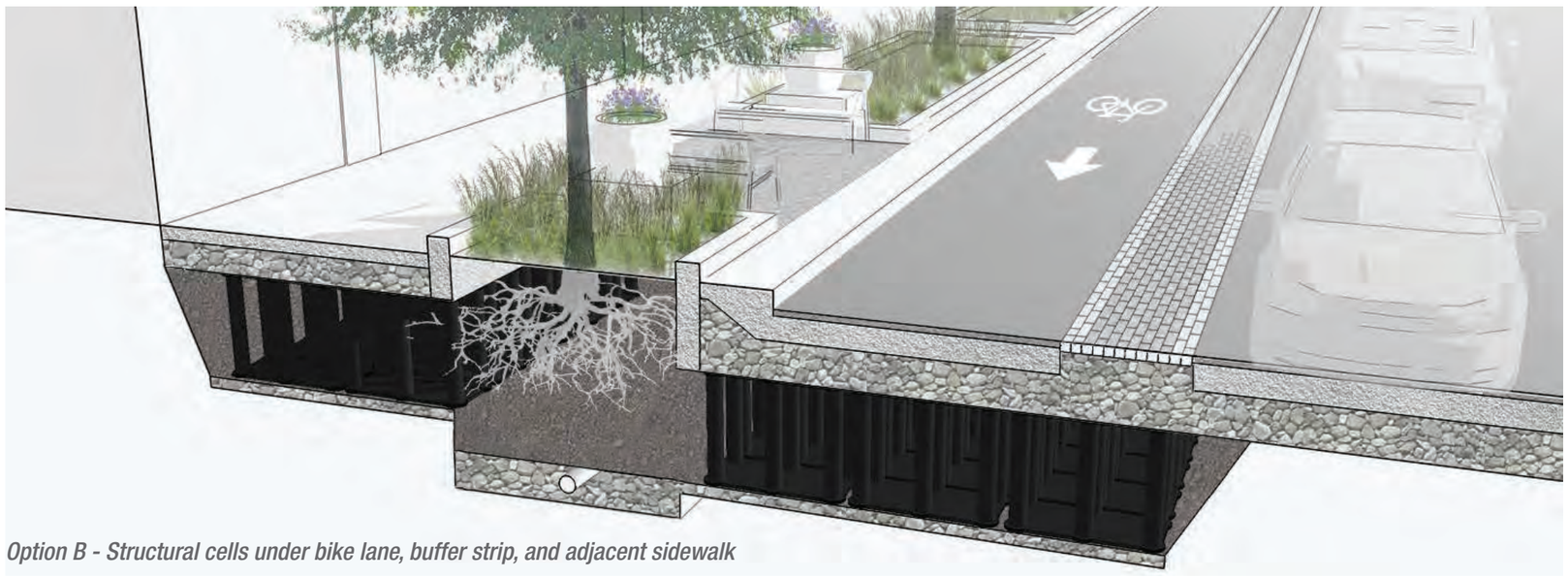
Proposed Modified Planter Railing Detail





Option A - Structural cells under bike lane and buffer strip





Option B - Structural cells under bike lane, buffer strip, and adjacent sidewalk

Structural Soil Cells - Options A+B

Permeable Pavers

Example Concrete Scoring (V-Groove, Bevel)

The following recommendations modify existing design standards and pertain to all future phases of streetscape construction on Ingersoll Avenue.

PAVING DETAILS

Concrete details, especially sawcut techniques, vary throughout the pilot project. Standardizing concrete installation should be a priority for the future phase of streetscape, and strict adherence by the contractor should be required. All sawcuts along the streetscape, generally in a 2'x2' pattern, should be V-groove (or bevel cut). The contractor should be required to submit a mockup panel with sample sawcuts for review and approval prior to concrete installation.

Permeable pavers are included in many locations along the corridor, both as a buffer in the roadway and at all proposed seating groups. The City of Des Moines expressed a desire to include permeable pavers wherever feasible as they act to improve stormwater capacity for the corridor. Crosswalks and the paver fields at the intersection of MLK Jr. Parkway should be traditional pavers on a concrete base, all other pavers on the streetscape should be permeable.

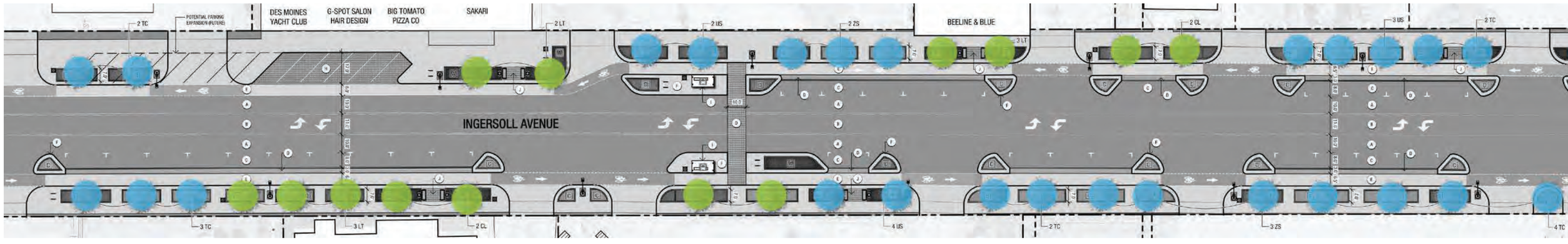
STRUCTURAL SOIL CELLS

Various green infrastructure techniques were explored throughout the planning process. If stormwater management goals in the final design dictate additional storage capacity, structural soil cells should be used under the roadway and/or sidewalk. These cells accomplish two things - increased capacity for stormwater and non-compacted soil volume, which is highly beneficial for the health and longevity of street trees that can access those volumes. Two optional layouts were included in the cost estimate on a 'per planter' basis.

Zelkova serrata - Japanese Zelkova

Tilia cordata - Littleleaf Linden

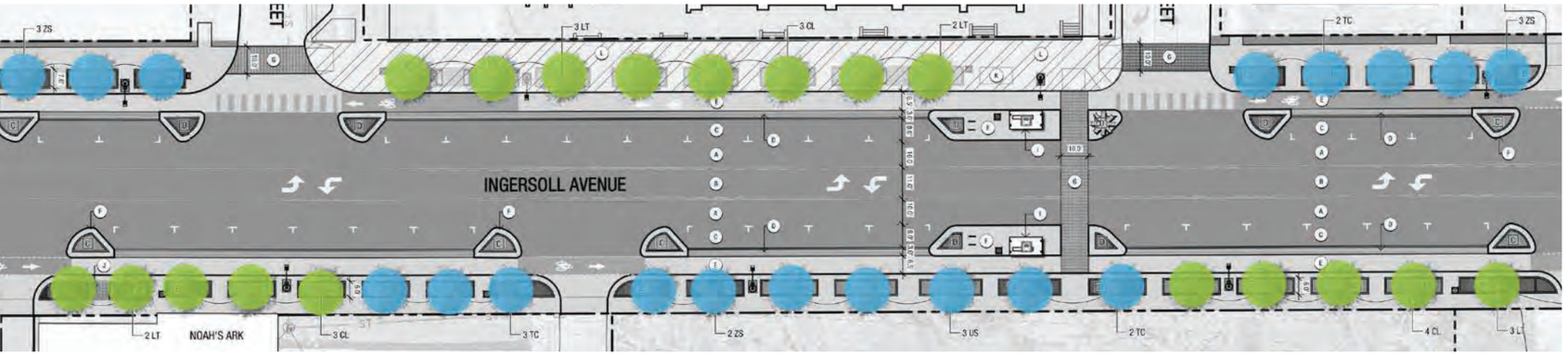
Ulmus spp. - Hybrid Elm



Proposed Street Trees - Groups A + B

Cladrastis kentukea - Yellowood

Liriodendron tulipifera - Tulip Tree



Planting plans and landscape maintenance procedures for the pilot project were evaluated as a part of this study, and the following recommendations to modify existing design standards pertain to all future phases of streetscape construction on Ingersoll Avenue.

STREET TREES

The pilot project street trees consist of only two species - Autumn Blaze Maple and Japanese tree lilac, located on the north and south sides of the street, respectively. Lilac trees are placed under overhead power lines on the south side and Maple trees are located on the north side. This lack of diversity can be problematic for the resiliency of street trees - as they can be more easily susceptible to pests, diseases, and/or climate change factors.

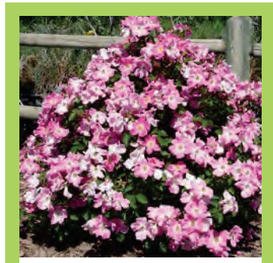
Five street tree species are proposed on the next phase of the streetscape to bolster diversity along the corridor. All species are full-sized overstory trees, as overhead power lines conflicts will not be a concern in the next phase.

As trees in the pilot project die or are removed, they should be replaced with one of the proposed species in order to promote a sense of uniformity between the pilot project and next phase. The proposed planting plan for the next phase groups species based on similar structure and appearance, and those groups alternate across the street.

Proposed Street Tree Species:

- Cladrastis kentukea, Yellowood - Group A
- Liriodendron tulipifera, Tulip Tree - Group A
- Tilia cordata, Littleleaf Linden - Group B
- Ulmus spp., Hybrid Elm - Group B
- Zelkova serrata, Japanese Zelkova - Group B

PROTOTYPE ‘D’ (ANNUALS TBD)



Double Knockout Rose

Feather Reed Grass

Cheddar Pinks

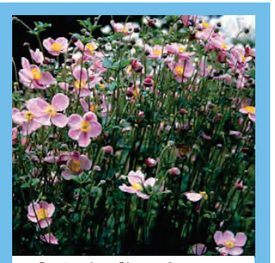
Matrona Stonecrop

Long Leaf Speedwell

PROTOTYPE ‘C’

Double Knockout Rose

Switch Grass



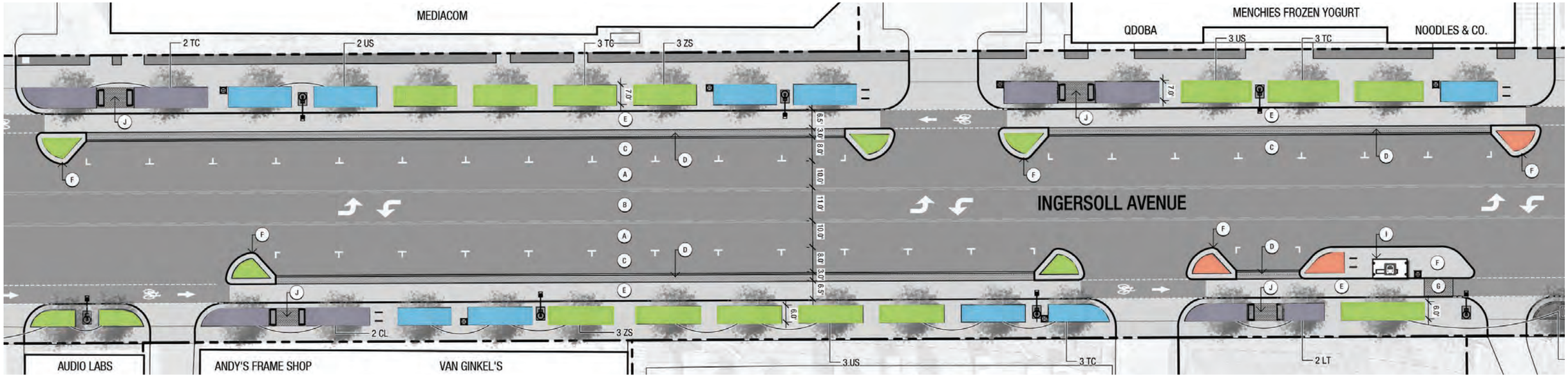
September Charm Anemone

Cranesbill

Husker Red Beardtongue

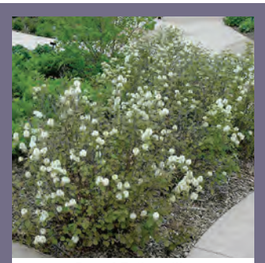
Matrona Stonecrop

PROTOTYPE ‘B’



Planter Prototypes + Zoomed in Plan

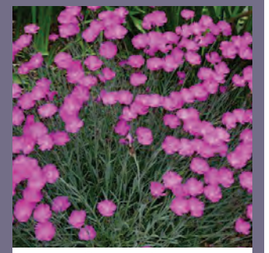

Double Knockout Rose


Dwarf Fothergilla

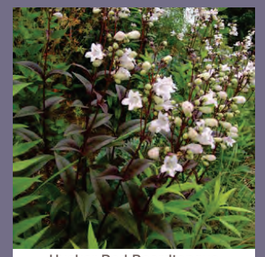

Feather Reed Grass

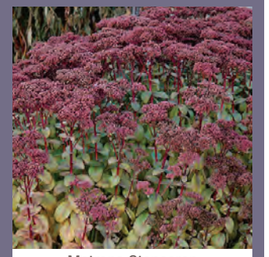

Switch Grass


September Charm Anemone

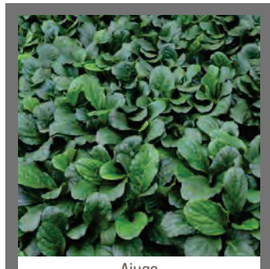

Cheddar Pinks


Cranesbill

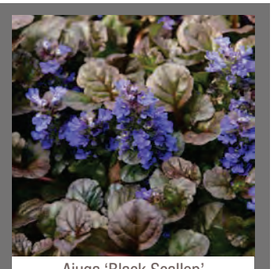

Husker Red Beardtongue


Matrona Stonecrop

PROTOTYPE ‘A’


Ajuga


Ajuga ‘Burgundy Glow’


Ajuga ‘Black Scallop’

GROUNDCOVER (ALL BEDS)

Planter Prototypes - Plant List

Prototype	Botanical Name	Common Name
A	*Rosa x ‘Radtko’	Double Knockout Rose
	Fothergilla gardenii	Dwarf Fothergilla
	Calamagrotis x acutiflora ‘Karl Foerster’	Feather Reed Grass
	*Panicum virgatum ‘Shenandoah’	Switch grass
	Anemone x hybrida ‘September Charm’	September Charm Anemone
	Dianthus gratianopolitanus ‘Firewitch’	Cheddar Pinks
	Geranium maculatum	Cranesbill
	Penstemon digitalis ‘Husker Red’	Husker Red Beardtongue
	Sedum ‘Matrona’	Matrona Stonecrop
B	*Rosa x ‘Radtko’	Double Knockout Rose
	*Panicum virgatum ‘Shenandoah’	Switch grass
	Anemone x hybrida ‘September Charm’	September Charm Anemone
	Geranium maculatum	Cranesbill
	Penstemon digitalis ‘Husker Red’	Husker Red Beardtongue
	Tradescantia ‘Zwanenburg Blue’	Zwanenburg’s Blue Spiderwort
C	Rosa ‘Nearly Wild’	Nearly Wild Rose
	Calamagrotis x acutiflora ‘Karl Foerster’	Feather Reed Grass
	Dianthus gratianopolitanus ‘Firewitch’	Cheddar Pinks
	Sedum ‘Matrona’	Matrona Stonecrop
	Veronica longifolia	Long Leaf Speedwell
D	Annuals (TBD)	
all beds	**Ajuga reptans	Ajuga

*not included in original pilot project plant list

**Proposed groundcover to be added in all planting beds

Planting plans and landscape maintenance procedures for the pilot project were evaluated as a part of this study, and the following recommendations to modify existing design standards pertain to all future phases of streetscape construction on Ingersoll Avenue.

PERENNIAL PLANT PALETTE

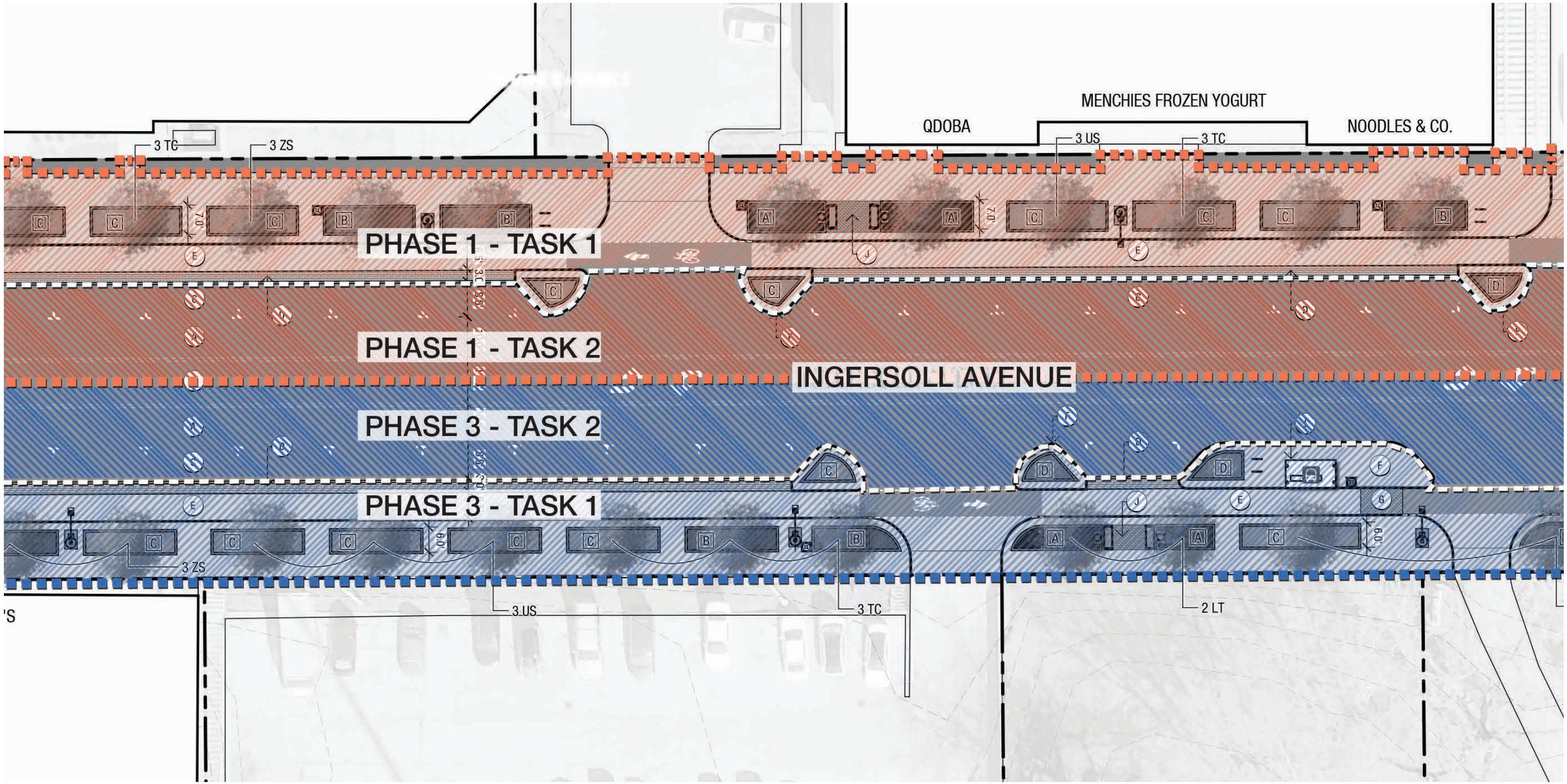
Perennial beds in the pilot project were observed to be in varying condition. On-site evaluation of the plant material, and discussions on maintenance/aesthetics, led to a few key conclusions:

- Existing plant palette is too extensive/diverse for effective maintenance
- Plant material is too dense in many cases - taller species should be pushed towards the center of beds to avoid over-hanging
- Specific plants should be eliminated from the list due to maintenance concerns (Yucca + Russian Sage)

PLANTER PROTOTYPES

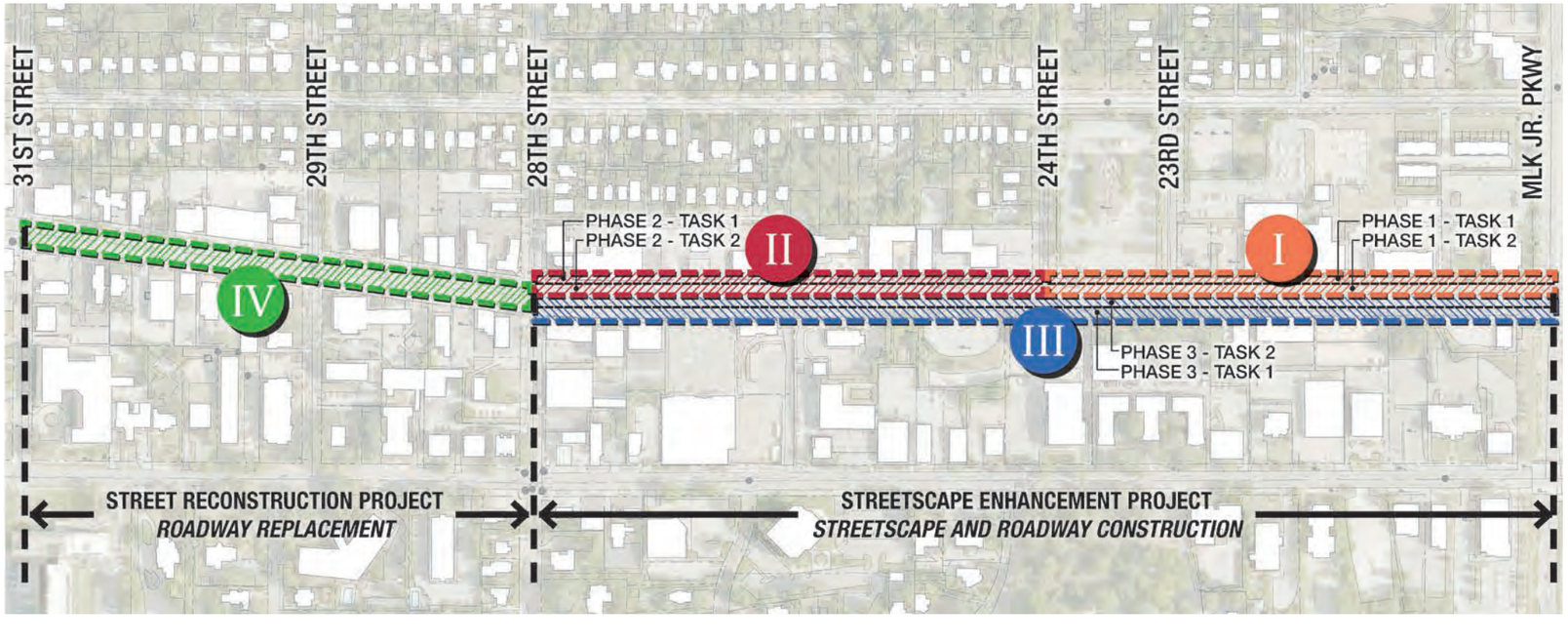
Four (4) prototypes for planting beds along the corridor have been established, which will organize and simplify planting beds in the next phase - both for ease of maintenance and to create a more consistent aesthetic along the corridor. A vast diversity of species will remain along the corridor, but species will be grouped and organized at specific locations per the established prototypes.

Prototypes with more plant diversity (A+B) required more maintenance, and are generally located at seating group areas and/or near intersections. The majority of mid-block planters consist of a simpler and more hardy plant palette (prototype C), with beds near transit stops identified for annual beds (prototype D). Species lists for each prototype are listed on this page. See layout plans for locations.



Phasing Plan Englargement

phasing + cost



The goals of construction phasing are to minimize temporary paving while maintaining two-way traffic and minimizing the amount of time the road functions with only one-way traffic and no turn lane. Staging and limits of the demolition have been carefully planned with these goals in mind.

CONSTRUCTION PHASING

The phasing map and corresponding phase decriptions to the left give a broad overview of the individual phases that were developed as a part of this study. Each phase will transition to the next as construction is completed.

TRAFFIC CONTROL

All demolition work is designed to be phased and allows for a minimum of two-way traffic on Ingersoll throughout the project. Occasional trenching across Ingersoll may close the street overnight or for short durations. Temporary rock drives and temporary paving will be utilized to help maintain circulation in and out of local businesses. Traffic control will be installed and adjusted for each phase of construction based current traffic levels, needs of local businesses, and pedestrian safety. Within each phase, work may be limited to shorter distances depending on progress.

PHASE I

Demolition will begin in Phase I, Task I with the removal of the public sidewalk and existing landscaping in the parking area (from back of curb to ROW). Additionally, some street paving will be removed to allow for construction of the new watermain. Limits for Phase I are MLK Jr. Parkway and 24th Street.

Once the watermain is installed and other utilities are adjusted, the sidewalk and bike lane will be constructed leaving approximately 35' to 44' of road width.

During Phase I, Task II an additional 13' - 22' of existing roadway will be removed, leaving enough room for two-way traffic along the south curb line. Work in this phase is mainly road bed preparation and minor utility extensions. This work should proceed quickly as once the road bed is prepped, the full depth HMA can be installed.

PHASE II

Phase II and its tasks will repeat Phase I work. The limits for Phase II are projected to be the north side of Ingersoll from 24th Street to 28th Street.

PHASE III

Phase III work is similar to the first two phases. The south walk will be removed first along with a small portion of the roadway. Once all the streetscape work is complete, the south 22' of roadway will be removed and bike lanes and islands can be constructed. The full depth HMA for the travel lanes and parking will be paved last.

PHASE IV

Phase IV work is located between 28th Street and 31st Street. It will involve only roadway construction and no new streetscape improvements on either side. Existing HMA pavement will be ground down, new bus stops will be built within the street, and a new HMA drive surface will be installed.

PROJECT ITEMS

PHASE I - MLK TO 24TH NORTH HALF	$174,800.00
PHASE II - 24TH TO 28TH NORTH HALF	$192,700.00
PHASE III - MLK TO 28TH SOUTH HALF	$331,500.00
PHASE IV - 28TH TO 31ST	$218,000.00

$917,000.00*

PAVING

PHASE I - MLK TO 24TH NORTH HALF	$678,730.00
PHASE II - 24TH TO 28TH NORTH HALF	$664,758.40
PHASE III - MLK TO 28TH SOUTH HALF	$963,018.80
PHASE IV - 28TH TO 31ST	$735,672.50

$3,042,179.70*

DEMOLITION

PHASE I - MLK TO 24TH NORTH HALF	$217,230.00
PHASE II - 24TH TO 28TH NORTH HALF	$204,020.00
PHASE III - MLK TO 28TH SOUTH HALF	$300,500.00
PHASE IV - 28TH TO 31ST	$294,900.00

$1,016,650.00*

EROSION CONTROL

PHASE I - MLK TO 24TH NORTH HALF	$11,200.00
PHASE II - 24TH TO 28TH NORTH HALF	$11,000.00
PHASE III - MLK TO 28TH SOUTH HALF	$19,200.00
PHASE IV - 28TH TO 31ST	$15,600.00

$57,000.00*

STORM SEWER

PHASE I - MLK TO 24TH NORTH HALF	$202,025.00
PHASE II - 24TH TO 28TH NORTH HALF	$139,200.00
PHASE III - MLK TO 28TH SOUTH HALF	$361,600.00
PHASE IV - 28TH TO 31ST	$131,200.00

$834,025.00*

LANDSCAPE/STREETSCAPE

PHASE I - MLK TO 24TH NORTH HALF	$698,737.50
PHASE II - 24TH TO 28TH NORTH HALF	$841.286.00
PHASE III - MLK TO 28TH SOUTH HALF	$1,793,311.50
PHASE IV - 28TH TO 31ST	$84,562.00

$3,417,897.00*

SANITARY SEWER

PHASE I - MLK TO 24TH NORTH HALF	$8,000.00
PHASE II - 24TH TO 28TH NORTH HALF	$2,000.00
PHASE III - MLK TO 28TH SOUTH HALF	$16,000.00
PHASE IV - 28TH TO 31ST	$2,000.00

$28,000.00*

MIDAMERICAN

PHASE I - MLK TO 24TH NORTH HALF	$250,000.00
PHASE II - 24TH TO 28TH NORTH HALF	$250,000.00
PHASE III - MLK TO 28TH SOUTH HALF	$2,000,000.00
PHASE IV - 28TH TO 31ST	$0.00

$2,500,000.00*

* - THIS IS A COST SUMMARY. SEE DETAILED COST ESTIMATE FOR COMPLETE INFORMATION.

PHASE I

PROJECT ITEMS	$174,800.00
DEMOLITION	$217,230.00
STORM SEWER	$202,025.00
SANITARY SEWER	$8,000.00
PAVING	$678,730.00
EROSION CONTROL	$11,200.00
LANDSCAPE/STREETSCAPE	$698,737.50
MIDAMERICAN	$250,000.00

$2,957,753.70*

PHASE II

PROJECT ITEMS	$192,700.00
DEMOLITION	$204,020.00
STORM SEWER	$139,200.00
SANITARY SEWER	$2,000.00
PAVING	$664,758.40
EROSION CONTROL	$11,000.00
LANDSCAPE/STREETSCAPE	$841,286.00
MIDAMERICAN	$250,000.00

$3,042,553.01*

PHASE III

PROJECT ITEMS	$331,500.00
DEMOLITION	$300,500.00
STORM SEWER	$361,600.00
SANITARY SEWER	$16,000.00
PAVING	$963,018.80
EROSION CONTROL	$19,200.00
LANDSCAPE/STREETSCAPE	$1,793,311.50
MIDAMERICAN	$2,000,000.00

$7,636,372.00*

PHASE IV

PROJECT ITEMS	$218,000.00
DEMOLITION	$294,900.00
STORM SEWER	$131,200.00
SANITARY SEWER	$14,000.00
PAVING	$735,672.50.00
EROSION CONTROL	$15,600.00
LANDSCAPE/STREETSCAPE	$84,562.00

$1,971,993.54*

* - THIS IS A COST SUMMARY. SEE DETAILED COST ESTIMATE FOR COMPLETE INFORMATION.

CONSTRUCTION COSTS

The costs for this project are broken out based on the four phases as shown in the phasing plans. It is understood that the phasing may vary slightly as the team develops the final construction plans. In addition, the cost to relocate the power lines underground may be incurred entirely in one phase. A small portion of this cost is applied to other phases to account for preparation work that can take place. This prep work will help expedite the construction timeline for burying the power lines when that time comes. As directed, this cost estimate assumes that each business will pay for their respective new service connections. Therefore, a unit cost only has been provided. Other utilities on the power poles and currently buried in ducts or conduit such as Mediacom, CenturyLink, UPN, and Windstream will relocate at their own expense.

Storm and sanitary sewer separation mainline work has been underway as of 2017, and this work has been represented on our plans. Some additional storm sewer improvements will be required to account for the street widening, added islands, and permeable pavers.

Watermain improvement will be paid for by Des Moines Water Works and will be performed in conjunction with each phase.

Lane closures, traffic control, and temporary access for businesses has been accounted for with each phase.