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www.ci.mequon.wi.us

Department of Community Development

PLANNING COMMISSION
Ad Hoc Port Washington Road Design Standards Committee
Thursday, December 9, 2021
1:30 PM
Virtual Meeting

AGENDA

MEETING NOTICE: Pursuant to the current recommendation of the CDC limiting the size of public gatherings and the various federal and state orders implementing that recommendation, and to help protect our community from the Coronavirus (COVID-19) pandemic, this meeting will be held virtually through the GoToMeeting platform with each member accessing the meeting remotely. Citizens may join the meeting online or by phone. Please go to <https://global.gotomeeting.com/join/885171437> to join the meeting online or call into the meeting by dialing 1 866 899 4679 and enter access code 885-171-437.

WRITTEN PUBLIC COMMENTS may be made in writing in advance of the meeting. Written comments should be directed to the Department of Community Development at least 2 hours prior to the meeting by email at DCD1@ci.mequon.wi.us addressed to the intended committee. Written public comment may also be deposited in the drop box at City Hall on 11333 N. Cedarburg Road, Mequon at least 2 hours prior to the meeting. Comments received timely will be forwarded to all members of the body for their consideration.

VERBAL PUBLIC COMMENTS will be accepted only from members of the public who register in advance. Registration shall be made by sending an email to at DCD1@ci.mequon.wi.us or by leaving a message at 262.236.2903 no later than 2 hours prior to the meeting.

- 1) Call to Order**
- 2) Port Washington Road Design Standards**
- 3) Next Steps**

Dated: December 3, 2021

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Notice is hereby given that a quorum of other governmental bodies may be present at this meeting to present, discuss and/or gather information about a subject over which they have decision-making responsibility, although they will not take formal action thereto at this meeting.

Persons with disabilities requiring accommodations for attendance at this meeting should contact the City Clerk's Office at 262-236-2914, twenty-four (24) hours in advance of the meeting.

Any questions regarding this agenda may be directed to the Department of Community Development's Office at 262-236-2904, Monday through Friday, 8:00 AM – 4:30 PM



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Office of Community Development

TO: Planning Commission
FROM: Kim Tollefson, Director of Community Development
DATE: December 9, 2021
SUBJECT: Port Washington Road Design Standards

INTRODUCTION

The Ad Hoc Port Washington Road Design Commission considers new and coordinated streetscaping along the corridor a significant priority in revitalizing the commercial district. As a result of the previous meeting, a few committee members submitted additional commentary that starts to build decision-making points and delivers substance to the purpose statement and elements of a typical commercial design guideline or specification book (see Exhibit A general thoughts provided). In many guidelines, distinctions (by intersection, block(s), building height, adjacent features, land use) within the larger corridors are noted and merit different treatment. The Committee previously received some example guidelines.

BACKGROUND

Various regulatory standards and committee approval processes guide development and aesthetics throughout the City. When public infrastructure or public amenities are required for a project, the City contracts with the property owner to implement these improvements through a development agreement. The development agreement will control the specifications and timing of implementation. For commercial development, the City Planning Commission will approve the site design, public infrastructure and public aesthetics and the Common Council will approve the development agreement. The agreement requires financial securities for execution of the project within the required timeframe.

ULAO CREEK STREETSCAPE (Port Washington Road: Highland to Pioneer Road)

Specific to the Port Washington Road commercial corridor, the required public infrastructure and public amenities are dictated by the Ula Creek zoning for the two mile stretch north of Highland Road and south of Pioneer Road. The streetscape design and public amenities include the following:

- Twenty-foot minimum width of open space along the entirety of the Port Washington Road ROW
- Street trees within above stated twenty-foot minimum open space (specified in the City's Tree Preservation ordinance)
- Designated Ula Creek street light fixtures within above stated twenty foot minimum open space (see attached)
- Asphalt multi-use path of eight feet in width – only on the west side of Port Washington Road - within above stated twenty-foot minimum open space
- Entryway amenities at the access of each development including street trees, designated street light fixture and signage
- Gateway outlot at corner of Port Washington and Highland Road (see Mequon Medical LLC Walking Path and Tree Colonnade Plan)

- Ulao Creek linear park, a 10-mile loop bike/pedestrian pathway throughout neighborhood (see attached)

Like the Town Center Design Guidelines, the Ulao Creek neighborhood now has regulatory design standards for streetscape. Architecture, a future topic for this committee, still needs to be established for Ulao Creek.

EXISTING COMMERCIAL (Port Washington Road: County Line to Highland)

A full list of streetscape elements is included in Exhibit B to assist the Committee in selecting those public amenities desired for this portion of Port Washington Road. In addition to the list, staff has prepared a Story Map that features various sites along the commercial corridor. The Story Map is interactive ([Defining Streetscape Design](#)). Committee members may zoom in to assess existing features and constraints within the right of way to determine extent and feasibility of the desired streetscape. Streetlights north of Mequon Road are newer and of different style than south of Mequon Road. The Department of Community Development has created a Story Map to showcase the implementation of the Town Center Design Guidelines. The Town Center Story Map ([Town Center Improvements to Date](#)) is also included for the committee's interactive use.

PLAN DEVELOPMENT

There is the need to test and develop a realistic implementation plan. After selections and dimensional standards are determined, application of such will be graphically applied to the existing right-of-way with an identification of constraints will be made. There is funding available should the committee chose to outsource this work.

OZAUKEE COUNTY AUTHORITY

In addition to the Committee's working session in which selection of features is desired, staff would like to note an additional necessary step related to streetscape implementation. Port Washington Road is a county highway and therefore under the authority of Ozaukee County. Maintenance of Port Washington Road is the responsibility of Ozaukee County. Prior to the adoption of streetscape design standards, notice and review by Ozaukee County is necessary.

SUMMARY

The expressed goal of the committee is to begin selection of the elements that will make-up the streetscape. The sample design guidelines, full list in Exhibit B, purpose statements and intent, staff's Story Map and the sample imagery from the committee's previous commentary should guide the decision-making process. Architecture and signage, future topics for this committee, will be addressed in upcoming meetings.

Attachments:

EXHIBIT A General Purpose Topics (PDF)
 EXHIBIT B List of Elements 12.07.21 (PDF)
 MARKED UP SPEC_Labeled (PDF)
 LSP1-1P_Mequon Ascension path_211020 (PDF)
 UC Parkway Map (PDF)
 UC Streetscape Map (PDF)
 Street Design Imagery(PDF)

**EXHIBIT A:
GENERAL PURPOSE STATEMENTS & SPECIFIC TOPICS TO ADDRESS**
(Member Dynek)

Generally:

1. There were hundreds of commercial design plans and guidelines that pop up in a google search, including the Mequon Town Center guidelines and the New Berlin Rural Commercial Guide. These relate to municipalities throughout the United States.
2. There are probably many more guidelines that haven't found their way onto the web and many communities have no design overlay districts. Irrespective of whether guidelines are adopted by municipalities, they are all trying to manage the design of commercial (as well as residential) districts within their borders to promote quality design and consistent street-facing aesthetics among all future commercial development as well as applicable redeveloped commercial projects. The purpose is to guide what is constructed in ways not covered by building codes and zoning ordinances.
3. Municipalities that have adopted guidelines recognize that intentional effort is required. Some of these guidelines are discretionary, and projects that follow them are assured favorable review by the municipality; projects that do not follow the guidelines are subject to higher levels of scrutiny and may not receive community support.
4. Design guidelines are adopted in a number of ways by various entities, including town boards, redevelopment agencies, cities, and planning commissions, many with the cooperation of the planning and development departments of these municipalities. As you're very aware, Mequon has guidelines for the Town Center that were reviewed by the Planning Commission but Mequon doesn't have a design overlay for other areas in the City. Mequon relies on site by site review by its Planning Commission of sites and architectural plans that are submitted. In addition and importantly, Mequon, like many other municipalities has sign ordinances.
5. Guidelines reflect standards that should function as a minimum requirement that elements of site design should meet.

Guidelines:

6. The guiding principles identified in commercial design plans and guidelines I've reviewed are consistent from municipality to municipality. These goals define and encourage the following:
 - Promote a cohesive and high quality urban environment—promote a cohesive pattern of development that lends a special sense of identity and place to the commercial districts. Each project should improve upon its surroundings to the public's benefit;

- Provide elements that define street and place—locate buildings to define street edges and corners, reduce visual impact of parking, and create a connection between the street and the building;
- Promote pedestrian convenience, comfort and enjoyment;
- Link adjacent compatible uses and connect neighborhoods—encourage connections to adjacent developments to knit the commercial district into a unified whole (for circulation and connectivity);
- Encourage high quality design and construction—design buildings to make a lasting contribution; add interest, variety and distinction to the district and spatially define and reinforce the public character of the area;
- Allow for diversity of architectural expressions to show creativity and imagination but respect the surrounding character—avoid nostalgic misrepresentations that confuse the relationships of building over time (this is partly what is wrong with the Germantown commercial district on HWY 60);
- Create a transition in height, bulk and scale—achieve a compatible transition between differing heights, bulk and scale;
- Enhance the buildings with landscaping—to provide open spaces and landscape areas and buffers that support pedestrian activity and comfort;
- Create a safe urban environment—employ physical design features that discourage crime while at the same time encouraging legitimate use of the environment and include site design measures to improve safety for pedestrians.

Site Visits:

7. I visited the area identified by another individual on the subcommittee, in Brookfield: Calhoun Road, between Gebhardt and North Avenue, (what may still be the Ruby Isle Shopping area). Landscaping and lighting is very nicely done. There are small areas of our Port Washington Road corridor, near the movie theater that make use of similar concepts. I also visited the New Berlin Rural Commercial district. I'm not sure that there has been much development there so it is difficult to tell whether they are following their own guidelines. It is a large rural commercial area, seems bigger than what Mequon has so designated. There are lots of orchards and corn fields, with some small shops, restaurants and farm stands sprinkled throughout. While much of Port Washington Road, south of Highland has been developed, a landscape plan would help provide continuity, tying the area together.

Training: Tenure on Planning Commission:

8. While serving on the Planning Commission, the Planning Commission was asked on occasion to comment on designs presented to it. Presentations did not provide context to the project, i.e. identification of buildings or areas adjacent to the project under consideration. Nor do I recall commissioners receiving training on considerations or guidelines to consider, either specific to the project or generally. Awareness of guiding principles would have been helpful in developing the discussion among commissioners.

9. During my time on the commission the design project relating to the Spine Clinic, a medical office building across from Stein's Garden Center was considered. The front of this building faces north, but the east side of the building faces Port Washington Road. The parapet on the north side of this building is effective, but does nothing for the street facing side. – The Street side should have been the focus for the commissioners' consideration. Had this feature been called to the attention of the commission, perhaps the design would have been more effective.

Trade Dress:

10. National or regional commercial chains like Walgreens or Associated Bank have developed corporate colors and trade dress for buildings they occupy. This issue is unavoidable and actually provides some interest and reduces monotony. Development of written guidelines might make it easier to work with developers to balance business needs against those of the community. Associated Bank has numerous iterations of its color/trade dress campaign. Mequon's version is more restrained than Glendale's but perhaps not as restrained as others in the area.

EXHIBIT B: LIST OF STREETScape ELEMENTS
(Member Iwanski)

- a. STREETScape COHESION –Highland Road to Mequon Road
 - i. Lighting:
 - 1. Primary Lights?
 - 2. Secondary Accent Lights?
 - 3. Color and Design?
 - 4. Who funds it? City?
 - ii. Road Paving:
 - 1. Different paving at intersections or crosswalks?
 - 2. Different Striping at intersections or crosswalks?
 - 3. Warning Field Plates color/design?
 - iii. Sidewalks/Paths:
 - 1. Pavement Type?
 - 2. Pavement patterns or textures?
 - 3. Bike accessibility?
 - iv. Road Curbing:
 - 1. Borders behind Curbs?
 - 2. ?
 - v. Landscaping at Roadway Median:
 - 1. Trees?
 - a. Big canopy vs. smaller ornamental
 - 2. Plant Beds/Shrubs?
 - a. Size of beds?
 - b. Mounded? (Or Depressed for Water Infiltration?)
 - c. Border Type around beds?
 - d. Accent features within beds?
 - 3. Who funds it? City?
 - vi. Landscaping at Curb-to-Sidewalk Median (usually only a 3ft to 5ft width):
 - 1. Trees?
 - a. Big canopy vs. smaller ornamental
 - 2. Plant Beds/Shrubs?
 - a. Size of beds?
 - b. Border Type around beds?
 - c. Accent features within beds?
 - d. Planter Units?
 - 3. Benches or other features?
 - 4. Who funds it?
 - vii. Signage:
 - 1. Street Signs & Posts?
 - a. Styles/Patterns/Colors?
 - 2. Neighborhood Signage?
 - a. Permanent or Temp Banners that mount on Light Poles?
 - 3. Monument Signage for City (or Neighborhoods)?
 - a. Identify City Limits
 - b. Identify Neighborhood Limits?
 - 4. Business Monument Signs?
 - a. Allow to match to building materials?
 - b. Further dictate standardization?

- b. STREETSCAPE COHESION –Mequon Road to County Line Road
 - i. Repeat above.
- c. STREETSCAPE COHESION – South of Mequon Rd
 - i. Repeat above.
- d. ARCHITECTURAL DESIGN STANDARDS – North of Highland
 - i. Building Material Types?
 - 1. Stone? Brick?
 - a. Real vs. Fake?
 - 2. Precast?
 - a. Exposed Aggregate/Sandblaster vs. Painted?
 - 3. Metal Panel?
 - a. Panel vs. Siding?
 - 4. EIFS?
 - 5. Exposed Steel/Iron?
 - 6. Wood or Faux Wood Elements?
 - 7. Glass and Mullions?
 - ii. Building Material Colors?
 - 1. Earth tones?
 - 2. Metallics?
 - 3. Modern/Institutional (White/Black/Grey)?
 - iii. Building Design Elements?
 - 1. How to embrace character without ?
 - 2. Design styles to reference as being encouraged without creating monotony?
 - 3. How to limit nationally-branded-building design that lacks a future alternative use?
 - iv. Frontage Requirements?
 - 1. Setback requirements for Building? For Parking?
 - 2. Fencing element requirements?
 - 3. Landscape screening requirements?
 - 4. How to the above tie together with overall Neighborhood Character desired?
- e. ARCHITECTURAL DESIGN STANDARDS – Highland to Mequon Rd
 - i. Same as above.
- f. ARCHITECTURAL DESIGN STANDARDS – South of Mequon
 - i. Same as above.

Ulao Creek Street Light Fixture



Saratoga 2
LED Post Top



SRT2 with C1 Capital , A1 Cage, T3
Top Spinning and no finial

EPA: 2.2
WEIGHT: 32 lbs (max.)



Quick Ship

Options in RED

Order Information Example:

SRT2PAC856W4KU3A1T1NFBK

SRT2

Model	Globe/Lens	Capital	LED Module	Voltage	Distribution
SRT2=Saratoga 2 Prismatic Globe Post Top	PA=Prismatic Acrylic PP=Prismatic Polycarbonate	C1=PLC1, C2=PLC2, C3=PLC3, C4=PLC4, C5=PLC5, C6=PLC6 C7=PLC7, C8=PLC8, C9=PLC9, C10=PLC10, C11=PLC11	See Chart on Page 2 & 3 64W3K	U=120-277V H=347/480V	3=Type III 5=Type V

Bands & Cages	Spinning	Options	Finial	Finish
A1=DECA1 A2=DECA2 A3=DECA3 A6=Perforated Band w/Cage A7=Flat Band w/Cage N=None	T1=T101 T3=T103 T4=T104 N=None	PC=Button Eye Photo Control H=House Side Shield PCR3=3 Pin Twist Lock Receptable (photo cell not included)* PCR7=7 Pin Twist Lock Receptable (photo cell not included)* N=None *C8, C10 Capital Only	B=GF2, C=GF3, D=GF4, E=GF5*, F=GF6, G=GF7, H=GF8, I=GF9, J=GF10, K=GF12, O=GF17, P=GF18, V=GF24 N=None *Black finish only	BK=Black BZ=Bronze DBZ=Dark Bronze WH=White GR=Green SM=Silver Metallic GY=Light Gray TBK=Textured Black CC=Custom Color (Consult Factory)

Specifications and Features:

Opti-FLUX™ LED
• CCT: 2700, 3000, 4000, 5000

Distribution
• Types III & V

Electrical
• Electronic 0-10V Dimmable Driver, 120-277V, 50/60Hz or 347/480V, 50/60Hz
• Standard Surge Protection included (6kV line-line; 10k-V line-earth)

Controls (Optional)
• Button eye photo control (PC)
• House Side Shield (H)
• 7-pin twist-lock receptacle (PCR7)**
• 3-pin twist-lock receptacle (PCR3)**

Housing
• Decorative capital housing choices with 3" slip fitter*

Finish
• Super durable polyester powder coat finish. Custom finishes available, including patinas and all RAL colors.

Listings & Ratings
• ETL listed to UL 1598 standard for wet location

Warranty
• 5 year limited warranty



150 Pemco Way-Wilmington, DE 19804 Phone 302.892.9000 Fax 302.892.9005 www.1882lighting.com info@1882lighting.com

Specifications subject to change without notice.

SRT2 Rev. 011821

Attachment: MARKED UP SPEC_Labeled (6895 : Port Washington Road Design Standards)

Saratoga 2

LED Post Top



Opti-FLUX™ LED
Light Engine

Lumen Output for SRT2										
					Type 3			Type 5		
	Input Watts	LED Module	Efficacy Range		Solid Top	Light Lid	Perf Lid	Solid Top	Light Lid	Perf Lid
5K	37	32W5K	103	115	3862	4103	4135	4086	4221	4288
	46	40W5K	105	117	4827	5129	5168	5108	5276	5359
	55	48W5K	106	118	5793	6155	6202	6129	6331	6431
	62	56W5K	108	120	6758	7181	7236	7151	7386	7503
	71	64W5K	109	121	7723	8207	8269	8173	8442	8575
	79	72W5K	110	122	8689	9233	9303	9194	9497	9647
	87	80W5K	111	124	9654	10258	10336	10216	10552	10719
	94	88W5K	112	125	10620	11284	11370	11237	11607	11791
102	96W5K	114	126	11585	12310	12404	12259	12663	12863	
4K	37	32W4K	96	106	3584	3808	3837	3792	3917	3979
	46	40W4K	98	108	4480	4760	4796	4740	4896	4974
	55	48W4K	99	109	5375	5712	5755	5688	5875	5968
	62	56W4K	100	111	6271	6664	6715	6636	6855	6963
	71	64W4K	101	113	7167	7616	7674	7584	7834	7958
	79	72W4K	102	114	8063	8568	8633	8532	8813	8952
	87	80W4K	103	115	8959	9520	9592	9480	9792	9947
	94	88W4K	104	116	9855	10472	10551	10428	10772	10942
102	96W4K	105	117	10751	11424	11511	11376	11751	11936	
3K	37	32W3K	87	96	3244	3447	3473	3432	3546	3602
	46	40W3K	88	98	4055	4309	4341	4291	4432	4502
	55	48W3K	89	99	4866	5170	5210	5149	5318	5402
	62	56W3K	91	101	5677	6032	6078	6007	6205	6303
	71	64W3K	92	102	6488	6894	6946	6865	7091	7203
	79	72W3K	93	103	7299	7755	7814	7723	7977	8103
	87	80W3K	94	104	8110	8617	8683	8581	8864	9004
	94	88W3K	94	105	8920	9479	9551	9439	9750	9904
102	96W3K	95	106	9731	10340	10419	10297	10637	10805	
27K	37	32W27K	86	95	3201	3401	3427	3387	3498	3553
	46	40W27K	87	97	4001	4251	4283	4233	4373	4442
	55	48W27K	88	98	4801	5101	5140	5080	5247	5330
	62	56W27K	90	100	5601	5951	5997	5927	6122	6219
	71	64W27K	91	100	6401	6802	6853	6773	6996	7107
	79	72W27K	91	101	7201	7652	7710	7620	7871	7995
	87	80W27K	92	102	8001	8502	8567	8467	8746	8884
	94	88W27K	93	103	8802	9352	9424	9313	9620	9772
102	96W27K	94	105	9602	10203	10280	10160	10495	10660	

Attachment: MARKED UP SPEC_Labeled (6895 : Port Washington Road Design Standards)

Capitals



PLC1 - 8 3/4" High



PLC2 - 10 13/16" High



PLC3 - 6 7/8" High



PLC4 - 7 13/16" High



PLC5 - 9 15/16" High



PLC6 - 8 1/16" High



PLC7 - 8 3/8" High



PLC8 - 11 3/8" High



PLC9 - 14 1/4" High



PLC10 - 10 1/4" High



PLC11 - 15" High

Bands & Cages



A1 - Cast Aluminum
Perforated Cage



A2 - Cast Aluminum
Band



A3 - Cast Aluminum
Cage



A6 - Cast Aluminum
Cage w/ Perforated
Band



A7 - Cast Aluminum
Cage w/ Flat Band



A6M - A6 Cage w/
Medallions*

*A1, A6, and A7 are available with Medallions. Add M to the end of the part number.

Attachment: MARKED UP SPEC_Labeled (6895 : Port Washington Road Design Standards)

Spinnings



T1 - T101 Top Spinning



T3 - T103 Top Spinning



T4 - T104 Top Spinning

Fixture Finials



GF2 - 6"



GF3 - 6"



GF4 - 6"



GF5 (Plastic) or
GF6 (Cast) - 4"



GF7 - 4.5"



GF8 - 4"



GF9 - 4.25"



GF10 - 3.5"



GF12 - 2.75"



GF17 - 4"



GF18 - 2.75"



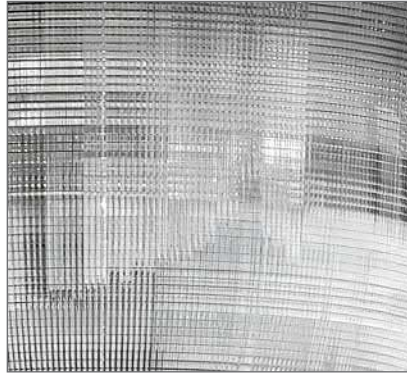
GF24 - 4.75"

Attachment: MARKED UP SPEC_Labeled (6895 : Port Washington Road Design Standards)

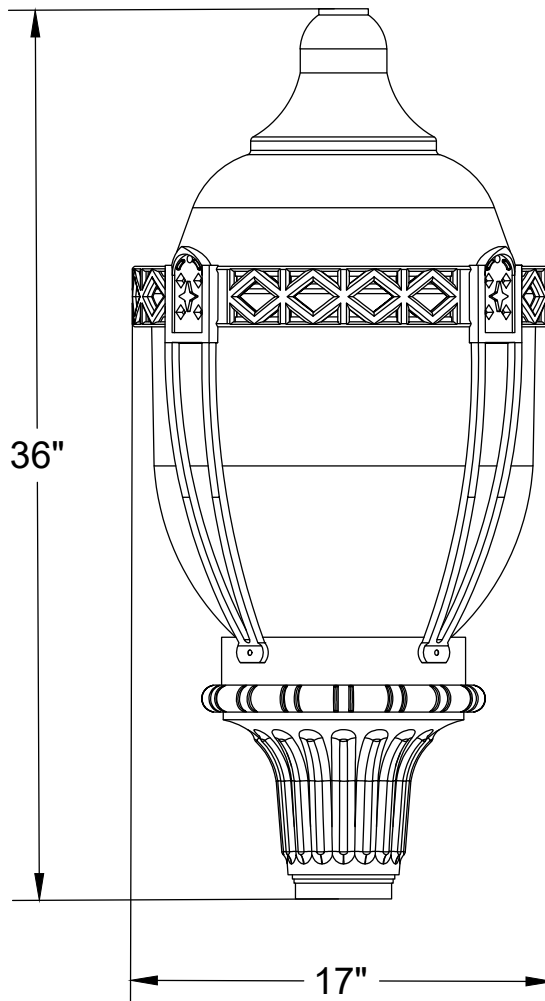
Saratoga 2

LED Post Top

PristmaticFinish



Close up of prismatic globe.



Attachment: MARKED UP SPEC_Labeled (6895 : Port Washington Road Design Standards)

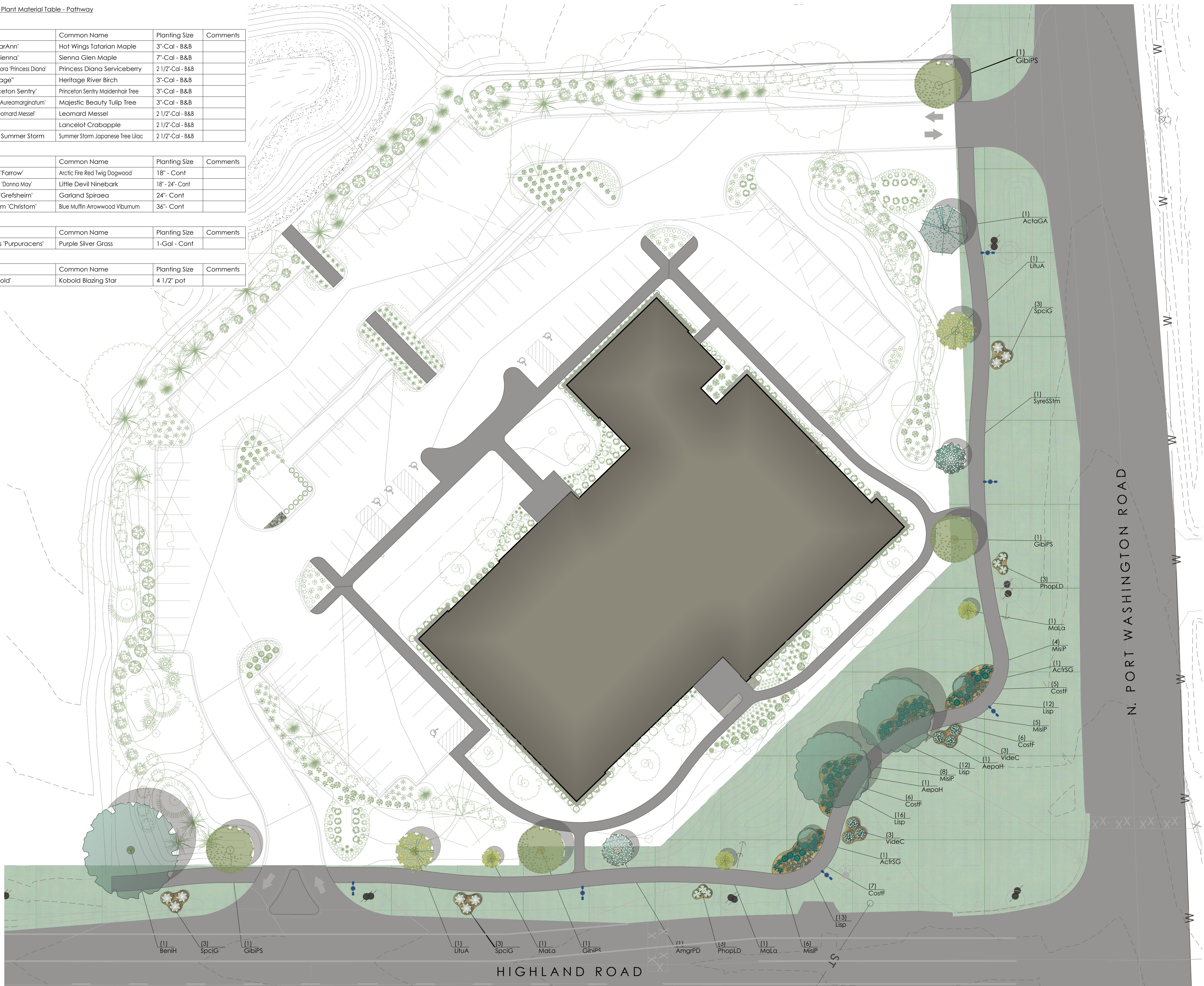
Proposed Plant Material Table - Pathway

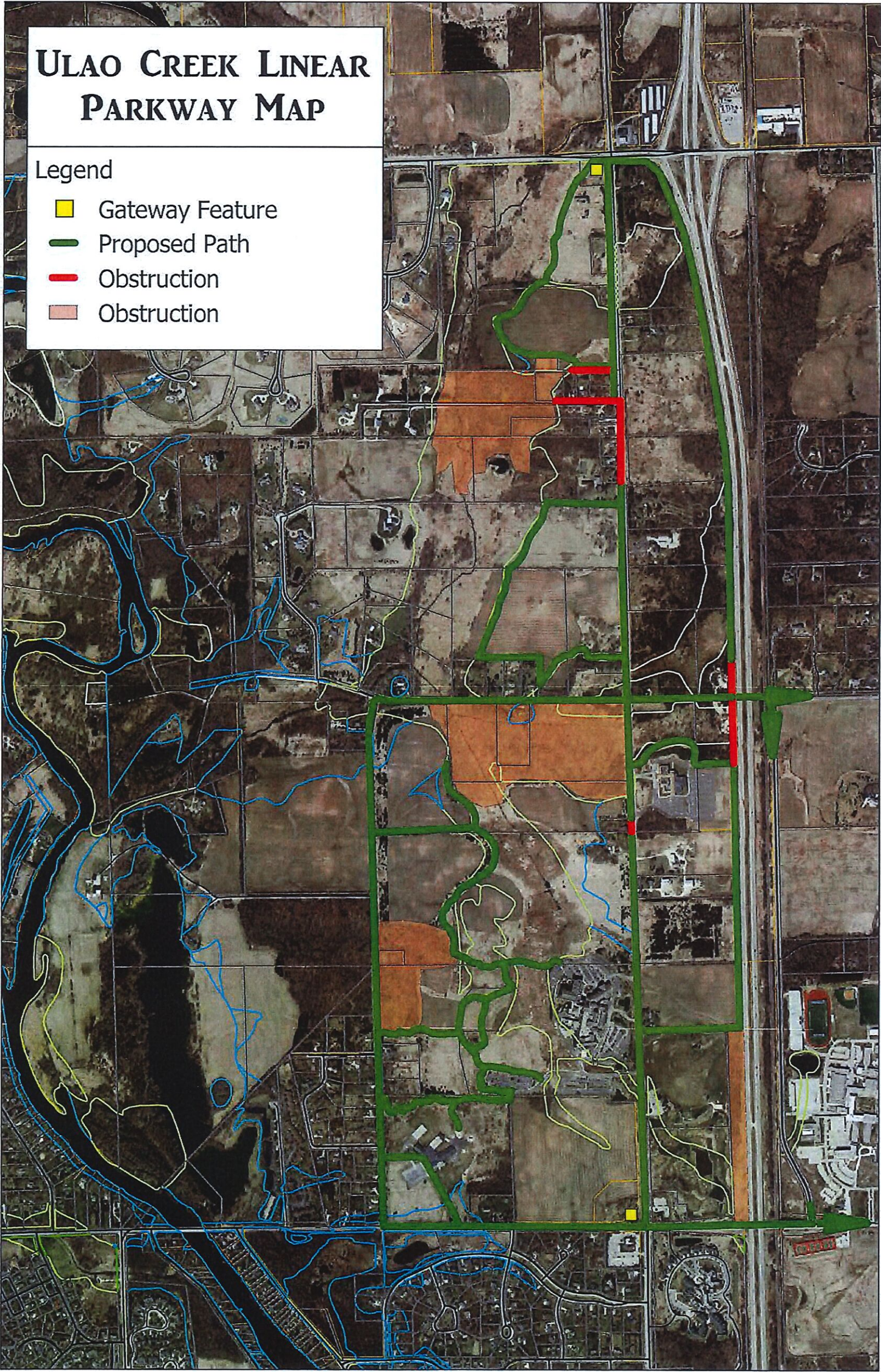
Broadleaf Deciduous Tree					
Quantity	Code Name	Symbol	Scientific Name	Common Name	Planting Size
1	ActaGA		Acer tataricum 'GarAnn'	Hot Wings Tatarian Maple	3"-Cal - B&B
2	AcfrSG		Acer x freemanii 'Sienna'	Sienna Glen Maple	7"-Cal - B&B
1	AmgrPD		Amelanchier x grandiflora 'Princess Diana'	Princess Diana Serviceberry	2 1/2"-Cal - B&B
1	BenIH		Betula Nigra 'Heritage'	Heritage River Birch	3"-Cal - B&B
4	GibiPS		Ginkgo biloba 'Princeton Sentry'	Princeton Sentry Maidenhair Tree	3"-Cal - B&B
2	LituA		Liriodendron tulipifera 'Aureomarginatum'	Majestic Beauty Tulip Tree	3"-Cal - B&B
2	MaLaLM		Magnolia x laeblneri 'Leonard Messel'	Leonard Messel	2 1/2"-Cal - B&B
3	MaLa		Malus 'Lanzani'	Lancelot Crabapple	2 1/2"-Cal - B&B
1	SyreSStrm		Syringa Reticulata Summer Storm	Summer Storm Japanese Tree Lilac	2 1/2"-Cal - B&B

Broadleaf Deciduous Shrub					
Quantity	Code Name	Symbol	Scientific Name	Common Name	Planting Size
27	CostF		Cornus stolonifera 'Farrow'	Arctic Fire Red Twig Dogwood	18" - Cont
6	PhopLD		Physocarpus opulifolius 'Donna May'	Little Devil Ninebark	18" - 24" Cont
9	SpcIG		Spiraea x cinerea 'Grefsheim'	Garland Spiraea	24" - Cont
6	VideC		Viburnum dentatum 'Christom'	Blue Muffin Arrowwood Viburnum	36" - Cont

Perennial Grass					
Quantity	Code Name	Symbol	Scientific Name	Common Name	Planting Size
41	MisIP		Miscanthus sinensis 'Purpurascens'	Purple Silver Grass	1-Gal - Cont

Perennial					
Quantity	Code Name	Symbol	Scientific Name	Common Name	Planting Size
69	Lisp		Liatris spicata 'Kobold'	Kobold Blazing Star	4 1/2" pot



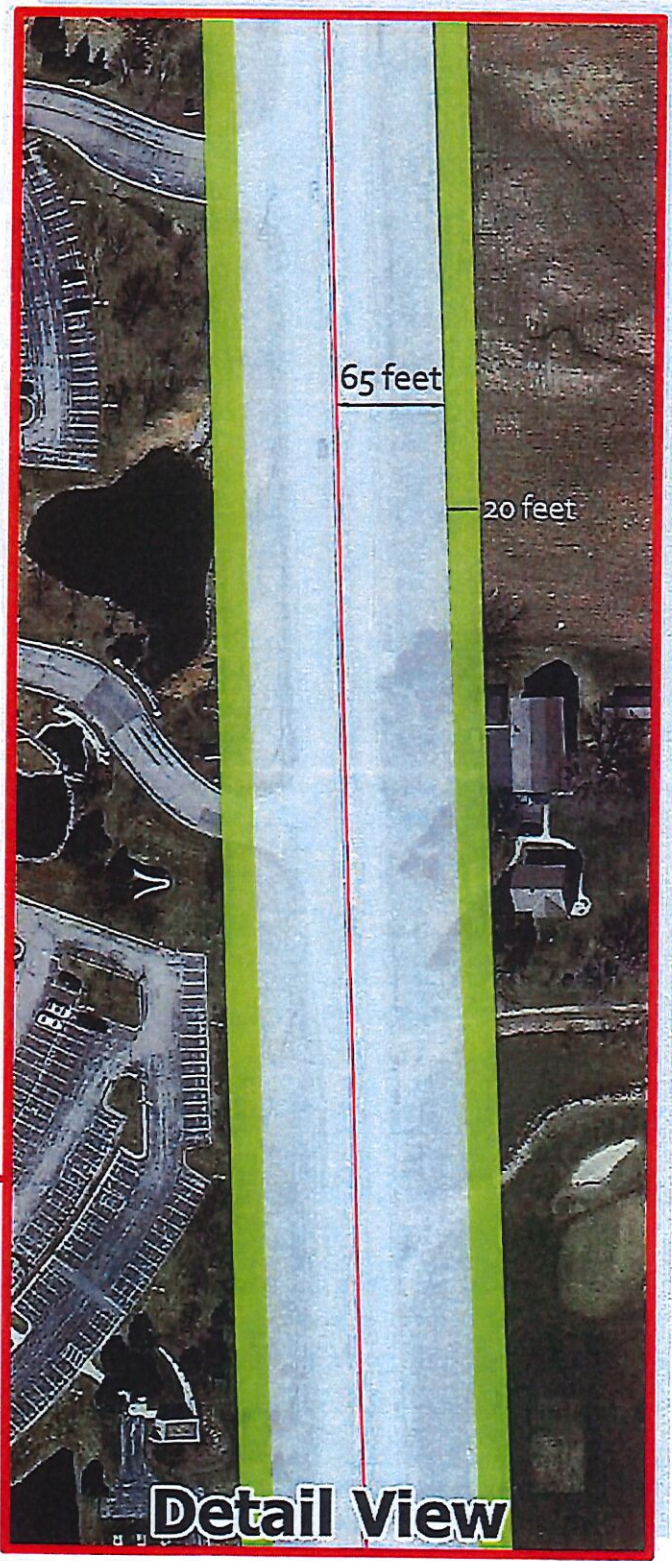




U LAO CREEK STREETSCAPE MAP

Legend

- Road Centerline
- Ultimate Road ROW: 130 feet
- Streetscape Area: 20 feet



Street Design Imagery

Treatment of Sidewalk, Terrace, Crosswalk, Street Tree pattern, light fixture, Signage as edge and Gateway markers, Street Furniture, pockets of Plaza and Open Space







A modified catch basin diverts storm water to lateral drains that feed into the planting areas via perforated underdrains.

As run-off seeps into the soil, excess water not absorbed by tree's root systems is stored in drainage stone below the planting beds. The water quality volume then infiltrates into the soil.

During large storm events, run-off flows into the city drainage system by passing over the over-flow weir.

Urban tolerant, wet tolerant shade trees

6" lateral drain

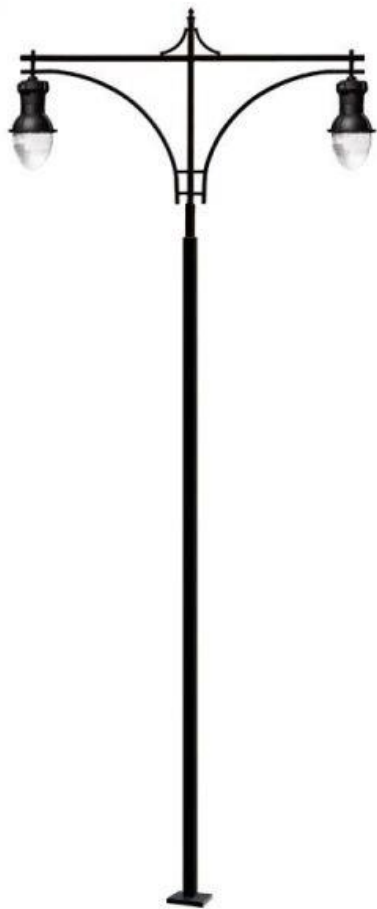
perforated underdrain

drainage stone

12" pipe to city manhole

over-flow weir

city manhole







BEFORE



AFTER





Add
Energy-
Efficient
Lighting

Improve
Signals

Enhance
Enforcement

Organize
Transit

Integrate
Public
Artwork

Connect
Walking
Networks

Upgrade
Materials

Reduce
Speed
Limits

