

# Lorain Avenue Design Concept

## 1. BACKGROUND

The goal to reinvigorate Lorain Avenue includes reconfiguring the roadway and installing a separated bikeway at sidewalk level. This concept was an outcome of the recommendations in the recently completed planning study, *Living Lorain: Lorain Avenue Corridor Improvement Plan* and subsequent meetings and discussions with Ohio City Inc., the City of Cleveland, and other interested parties. The City of Cleveland is considering advancing the project and would like to develop a clearly defined design concept with an associated cost estimate for use in identifying and acquiring funding for the project.

This concept has progressed through a series of steps after completion of the *Living Lorain* study. Due to the complexities associated with installation of a separated bikeway adjacent to a roadway, the concept has undergone study at the local level. In August 2014, a group of city officials and others traveled to Indianapolis to experience their Cultural Trail and to meet with Indianapolis city staff to gain an understanding of the challenges, opportunities and benefits associated with such a facility. This trip was followed by a meeting at Cleveland City Hall on October 20, 2014 where the merits of moving forward with the proposed separated bicycle facility on Lorain Avenue were discussed. The meeting outcome was favorable, with the consensus to pursue a separated bikeway at sidewalk level for Lorain Avenue that is consistent with the functionality of the Cultural Trail in Indianapolis. In an effort to clearly define the design concept to enable clear understanding of the components of the proposed project and the funding needs, a design concept workshop was held on November 24, 2014. The workshop included representatives from: Ohio City Inc., City of Cleveland Mayor's Office and Council, staff from Cleveland's Traffic and Planning Divisions, GCRTA's Planning and Service Planning Departments, Detroit Shoreway, Gund Foundation, NOACA, ODOT, Cleveland Neighborhood Progress, and the consultant team of Michal Baker International and Behnke Landscape Architects.

At the design concept workshop, key staff discussed the various constraints and opportunities that factor into operations and design, and made recommendations for the design concept. Four concepts were developed, from bare bones implementation of the only proposed raised, separated bikeway to implementation of the bikeway with complete streetscape enhancement on both sides of Lorain Avenue. This technical memorandum summarizes the recommendations from the design concept workshop and provides funding information for each of the four design concepts.

## 2. PROJECT LIMITS

For this project and design concept, the Lorain Avenue corridor encompasses Lorain Avenue from W.20<sup>th</sup> Street to W.65<sup>th</sup> Street.

### 3. DESIGN CONCEPT DEVELOPMENT

As mentioned above, a design concept workshop was held on November 24, 2014 to determine specific elements and components of the design. Specific concerns included traffic operations at intersections and accommodation of transit along the Lorain Avenue corridor. The workshop started with a kick-off meeting that included the individuals and agency representatives that are interested in the project. The project team set the stage for the design issues to be addressed, including a visual “walk” through the corridor, identification of design elements and critical components, and discussion of constraints and preferences.

The Design Concept Team then worked together to develop the recommended design concept for the Lorain Avenue corridor, addressing the elements listed below.

- ◇ Bicycle facility location (north and/or south side of Lorain Avenue)
- ◇ Roadway width and curb locations
- ◇ Intersection configuration (turn lanes, traffic control, interface with side path bicycle facility)
- ◇ Traffic signals (replacement, reconfiguration, warrant/removal analysis; determine what should be included in the project)
- ◇ Changes in cross street configuration, function and access, as applicable
- ◇ Identify intersections with potentially unwarranted signals
- ◇ Mid-block crossing locations and treatments
- ◇ Median location(s)
- ◇ On-street parking
- ◇ Sidewalk width and finishes (including side path bicycle facility; level of investment may vary for different sections of the corridor)
- ◇ Bus stop locations and transit waiting environments
- ◇ Interface of side path bicycle facility with TWEs
- ◇ Streetscape and landscape elements
- ◇ Green infrastructure

The design concept workshop concluded with a meeting attended by the complete team of individuals and agency representatives interested in the project. The Design Concept Team presented the recommended Lorain Avenue design concept to the group for their review, discussion and approval. Specific design elements and considerations are included in the workshop meeting minutes which are provided in Appendix A.

## 4. RECOMMENDED DESIGN CONCEPT

The basic alignment of the raised separated bikeway from east to west is as follows: The bikeway starts on the north side of Lorain Avenue at W.20<sup>th</sup> Street, effectively continuing the recently completed multi-use facility across the north side of the Lorain Carnegie Bridge. The bikeway continues along the north side of Lorain Avenue to W.44<sup>th</sup> Street. The north side was selected because it has fewer intersections and driveway cuts than the south side. The bikeway changes sides at W.44<sup>th</sup> Street to allow for connection to the Zone Recreation Center which is located on the south side of Lorain Avenue located between W.53<sup>rd</sup> and W.65<sup>th</sup> Streets. The design concept team envisions the bikeway crossing at W.44<sup>th</sup> Street will run diagonally across the intersection as a clearly defined continuation of the bikeway with an all-red signal phase to facilitate the crossing. The operational feasibility of this anticipated treatment needs to be studied in the next phase of project development. If a diagonal crossing is not operationally feasible, the alternative would be routing the trail across two legs of the intersection aligned with the crosswalks.

The design concept is presented as four potential alternatives which range from the most basic features to create the raised separated bikeway to complete enhancement of the corridor, as described below. This range of options allows for funding flexibility.

### **Option 1: Basic Construction on the Bikeway Side Only**

Features of Option 1 include the raised separated bikeway on the north side of Lorain Avenue from West 20<sup>th</sup> Street to West 44<sup>th</sup> Street, continuing on the south side of Lorain Avenue from West 44<sup>th</sup> Street to West 65<sup>th</sup> Street. Pedestrian-scale lighting and new curb and drainage will be provided for only the bikeway side of Lorain Avenue. This option also includes resurfacing the entire width of Lorain Avenue within the limits of the project. Streetscape and landscape are not included.

### **Option 2: Enhanced Construction on the Bikeway Side Only**

Features of Option 2 include all of Option 1 with the added provision of streetscape and landscape improvements.

### **Option 3: Basic Construction on both North and South Sides of Lorain Avenue**

Features of Option 3 include the raised separated bikeway on the north side of Lorain Avenue from West 20<sup>th</sup> Street to West 44<sup>th</sup> Street, continuing on the south side of Lorain Avenue from West 44<sup>th</sup> Street to West 65<sup>th</sup> Street. Pedestrian-scale lighting and new curb and drainage will be provided for both sides of Lorain Avenue. This option also includes resurfacing the entire width of Lorain Avenue within the limits of the project. Streetscape and landscape are not included.

### **Option 4: Enhanced Construction on both North and South Sides of Lorain Avenue**

Features of Option 4 include all of Option 3 with the added provision of streetscape and landscape improvements.

## 5. BUDGET LEVEL COST ESTIMATE

Summaries of estimated costs for each of the four options are provided in Table 1 below. The project may be phased, with an east section and a west section that is divided at W.44<sup>th</sup> Street. The East Section runs from W.20<sup>th</sup> Street to and including W.44<sup>th</sup> Street; it is approximately 57% of the total length. The cost estimate summaries for those two phases are provided in Table 2. The East and West Section costs are based on the proportional linear distances of 57% and 43% for east and west, respectively, with the exception of the signal costs which reflect the signalized intersection costs within each section. Furthermore, the detailed cost breakdowns for the entire project are provided in Appendix B.

**Table 1: Budget Level Cost Estimate for Lorain Avenue Design Concept**

Option	Option 1 Basic Bikeway Side	Option 2 Enhanced Bikeway Side	Option 3 Basic Both Sides	Option 4 Enhanced Both Sides
Roadway	\$1,489,800	\$1,489,800	\$2,256,400	\$2,256,400
Erosion Control	\$11,800	\$11,800	\$23,300	\$23,300
Drainage	\$434,100	\$434,100	\$741,100	\$741,100
Pavement	\$1,327,100	\$1,327,100	\$1,577,700	\$1,577,700
Water	\$130,700	\$130,700	\$176,400	\$176,400
Lighting	\$676,300	\$676,300	\$676,300	\$676,300
Traffic Control	\$146,800	\$146,800	\$146,800	\$146,800
Traffic Signals	\$475,000	\$475,000	\$475,000	\$475,000
Landscape and Streetscape	-	\$1,706,100	-	\$3,503,800
Structures	\$400,000	\$400,000	\$400,000	\$400,000
Maintenance of Traffic	\$76,400	\$76,400	\$96,200	\$96,200
Testing	\$15,900	\$15,900	\$15,900	\$15,900
Miscellaneous	\$531,500	\$531,500	\$531,500	\$531,500
<b>Subtotal Estimated Construction</b>	<b>\$5,715,400</b>	<b>\$7,421,500</b>	<b>\$7,116,600</b>	<b>\$10,620,400</b>
Contingency (30%)	\$1,714,600	\$2,226,500	\$2,135,000	\$3,186,100
Subtotal	\$7,430,000	\$9,648,000	\$9,251,600	\$13,806,500
2018 (10.6%)	\$787,600	\$1,022,700	\$980,700	\$1,463,500
<b>Total Estimated Construction Cost</b>	<b>\$8,217,600</b>	<b>\$10,670,700</b>	<b>\$10,232,300</b>	<b>\$15,270,000</b>
Estimated Design Fee (8% of Construction)	\$657,400	\$853,700	\$818,600	\$1,221,600
<b>Estimated Total Project Cost</b>	<b>\$8,875,000</b>	<b>\$11,524,400</b>	<b>\$11,050,900</b>	<b>\$16,491,600</b>

**Table 2: Phased Budget Level Cost Estimate for Lorain Avenue Design Concept**

Cost	East Section W.20 <sup>th</sup> Street to W.44 <sup>th</sup> Street				West Section W.44 <sup>th</sup> Street to W.64 <sup>th</sup> Street			
	Option 1 Basic Bikeway Side	Option 2 Enhanced Bikeway Side	Option 3 Basic Both Sides	Option 4 Enhanced Both Sides	Option 1 Basic Bikeway Side	Option 2 Enhanced Bikeway Side	Option 3 Basic Both Sides	Option 4 Enhanced Both Sides
Roadway	\$849,200	\$849,200	\$1,286,100	\$1,286,100	\$640,600	\$640,600	\$970,300	\$970,300
Erosion Control	\$6,700	\$6,700	\$13,300	\$13,300	\$5,100	\$5,100	\$10,000	\$10,000
Drainage	\$247,400	\$247,400	\$422,400	\$422,400	\$186,700	\$186,700	\$318,700	\$318,700
Pavement	\$756,400	\$756,400	\$899,300	\$899,300	\$570,700	\$570,700	\$678,400	\$678,400
Water	\$74,500	\$74,500	\$100,500	\$100,500	\$56,200	\$56,200	\$75,900	\$75,900
Lighting	\$385,500	\$385,500	\$385,500	\$385,500	\$290,800	\$290,800	\$290,800	\$290,800
Traffic Control	\$83,700	\$83,700	\$83,700	\$83,700	\$63,100	\$63,100	\$63,100	\$63,100
Traffic Signals	\$356,000	\$356,000	\$356,000	\$356,000	\$119,000	\$119,000	\$119,000	\$119,000
Landscape/Streetscape	-	\$972,500	-	\$1,997,200	-	\$733,600	-	\$1,506,600
Structures	\$228,000	\$228,000	\$228,000	\$228,000	\$172,000	\$172,000	\$172,000	\$172,000
Maintenance of Traffic	\$43,500	\$43,500	\$54,800	\$54,800	\$32,900	\$32,900	\$41,400	\$41,400
Testing	\$9,100	\$9,100	\$9,100	\$9,100	\$6,800	\$6,800	\$6,800	\$6,800
Miscellaneous	\$303,000	\$303,000	\$303,000	\$303,000	\$228,500	\$228,500	\$228,500	\$228,500
<b>Subtotal Estimated Construction</b>	<b>\$3,343,000</b>	<b>\$4,315,500</b>	<b>\$4,141,700</b>	<b>\$6,138,900</b>	<b>\$2,372,400</b>	<b>\$3,106,000</b>	<b>\$2,974,900</b>	<b>\$4,481,500</b>
Contingency (30%)	\$1,002,900	\$1,294,700	\$1,242,500	\$1,841,700	\$711,700	\$931,800	\$892,500	\$1,344,500
<b>Subtotal</b>	<b>\$4,345,900</b>	<b>\$5,610,200</b>	<b>\$5,384,200</b>	<b>\$7,980,600</b>	<b>\$3,084,100</b>	<b>\$4,037,800</b>	<b>\$3,867,400</b>	<b>\$5,826,000</b>
2018 (10.6%)	\$460,700	\$594,700	\$570,700	\$845,900	\$326,900	\$428,000	\$409,900	617,600
<b>Total Estimated Construction Cost</b>	<b>\$4,806,600</b>	<b>\$6,204,900</b>	<b>\$5,954,900</b>	<b>\$8,826,500</b>	<b>\$3,411,000</b>	<b>\$4,465,800</b>	<b>\$4,277,300</b>	<b>\$6,443,600</b>
Estimated Design Fee (8% of Construction)	\$384,500	\$496,400	\$476,400	\$706,100	\$272,900	\$357,300	\$342,200	\$515,500
<b>Estimated Total Project Cost</b>	<b>\$5,191,100</b>	<b>\$6,701,300</b>	<b>\$6,431,300</b>	<b>\$9,532,600</b>	<b>\$3,683,900</b>	<b>\$4,823,100</b>	<b>\$4,619,500</b>	<b>\$6,959,100</b>

*Note: Any minor differences between the cost for each option shown in Table 1 and the East and West cost breakdowns in Table 2 are due to rounding.*





## APPENDIX A: DESIGN CONCEPT WORKSHOP MINUTES



## MEETING NOTES

### Attendance

Introduction (8:30-9:30 a.m.)	Workshop (9:30 a.m.-3:30 p.m.)	Summary (3:30-4:30 p.m.)	Organization	Name	email	Phone
√	√	√	Ohio City Inc.	Tom McNair	tmcnair@ohiocity.org	(216) 781-3222 x107
√	√	√	Ohio City Inc.	Ben Trimble	btrimble@ohiocity.org	(216) 781-3222 x105
√	√	√	Ohio City Inc.	Anna Enderle	aenderle@ohiocity.org	(216) 781-3222 x109
√			Cleveland - Council	Joe Cimperman	joecimperman@gmail.com	(216) 664-2691
			Cleveland - Council	Matt Zone	mattzone@sbcglobal.net	(216) 334-1515
			Cleveland - Mayor's Office	Ken Silliman	KSilliman@city.cleveland.oh.us	(216) 664-3502
	√		Cleveland - Traffic	Rob Mavec	rmavec@city.cleveland.oh.us	(216) 664-3194
√	√		Cleveland - Planning	Freddy Collier	FCollier@city.cleveland.oh.us	(216) 664-3468
√	√		Cleveland - Planning	Donn Angus	dangus@city.cleveland.oh.us	
√	√		Cleveland - Planning	Trevor Hunt	thunt@city.cleveland.oh.us	(216) 664-2212
√	√		Cleveland - Planning	Arthur Schmidt	aschmidt@city.cleveland.oh.us	(216) 664-3817
√	√	√	Bike Cleveland	Jacob Van Sickle	jacob@bikecleveland.org	(216) 245-3101
			GCRTA	Joe Calabrese	jcalabrese@gcrta.org	(216) 566-5218
√	√	√	GCRTA - Planning	Amy Snell	ASNELL@gcrta.org	(216) 771-4144
√	√	√	GCRTA - Service Planning	Jonathan Ciesla	JCIESLA@gcrta.org	(216) 771-4023
√		√	Gund Foundation	Claire Gauntner	cgauntner@gundfdn.org	(216) 241-3114
√			NOACA	Grace Gallucci	ggallucci@mpo.noaca.org	(216) 241-2414 x100
√	√	√	NOACA	Josh Naramore	jnaramore@mpo.noaca.org	(216) 241-2414 x212
√	√	√	NOACA	Melissa Thompson	MThompson@mpo.noaca.org	(216) 241-2414 x344
√	√	√	ODOT	John Motl	John.Motl@dot.state.oh.us	(216) 584-2085
			CNP	Linda Warren	lmw@neighborhoodprogress.org	(216) 453-1446
√	√	√	CNP	Justin Fleming	jffleming@clevelandnp.org	(216) 453-1442
			CNP	Wayne Mortensen	WMortensen@clevelandnp.org	(216) 453-1443
√	√	√	Detroit Shoreway	Nick Fedor	nfedor@dscdo.org	(216) 961-4242 x261
√	√	√	Detroit Shoreway	Adam Davenport	adavenport@dscdo.org	(216) 961-4242 x265
√		√	Baker	Kirsten Bowen	KNBowen@mbakerintl.com	(216) 776-6609
√	√	√	Baker	Nancy Lyon-Stadler	nlyonstadler@mbakerintl.com	(216) 776-6814
√	√	√	Baker	Jim Shea	Jim.Shea@mbakerintl.com	(216) 776-6806
√	√	√	Behnke	Matt Hills	mhils@behnkela.com	(216) 589-9100 x109

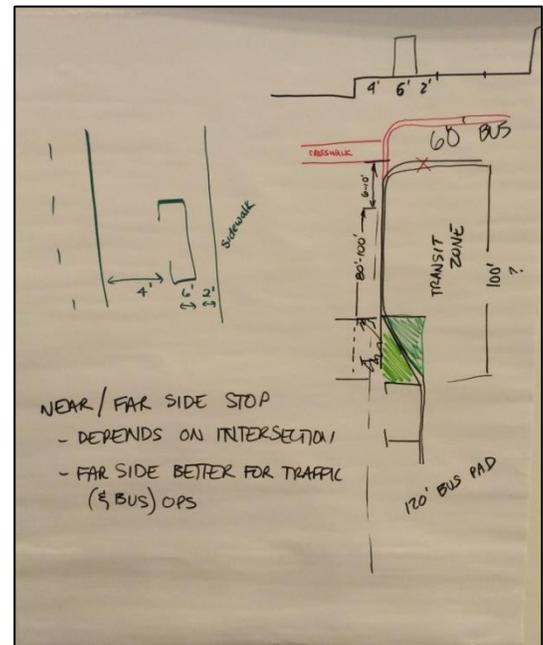
## AGENDA

1. Workshop Introduction
  - a) *Project history*
  - b) *Workshop purpose*
  - c) *Design considerations*
2. Workshop
  - a) *Discussion of operational considerations*
    - Traffic
    - Transit
    - Design elements
    - Other considerations
  - b) *Design concept development*
    - Raise cycle track alignment
    - Traffic and transit discussion
3. Summary and Recommendations

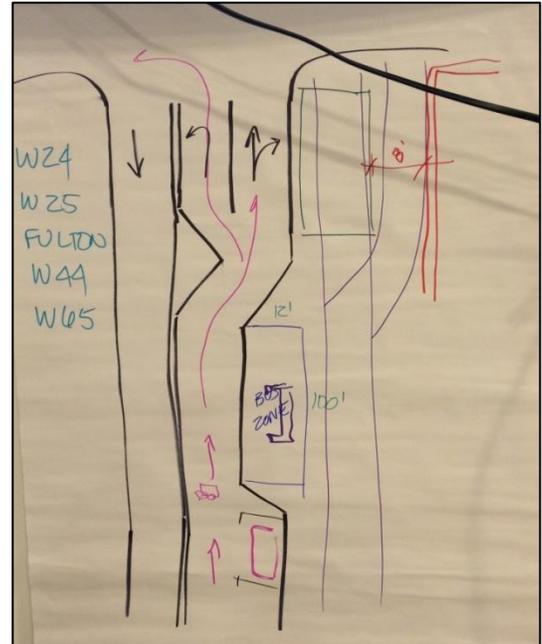
## DISCUSSION & RECOMMENDATIONS

### 1. Transit Accommodations

- Near side vs. far side bus stop
  - ◇ Preference depends upon the intersection
  - ◇ Far side bus stop is generally expected to function better for traffic (and bus) operations
  - ◇ **RTA to verify if there is a preference for near/far side bus stops for the Lorain Ave bus stops (EB and WB between W.20<sup>th</sup> and W.65<sup>th</sup> Streets)**
- Transit zone for 60 ft articulated bus is 12 ft x 100 ft with forward facing bus shelter (**RTA will verify these dimensions**)
  - ◇ 6-10 ft offset from marked crosswalk
  - ◇ 80-100 ft unimpeded curb line
  - ◇ 5 ft x 8 ft wheelchair loading area (unimpeded space)
  - ◇ Forward-facing shelter (faces street)
  - ◇ Shelter dimension 6 ft x 10 ft (**GCRTA will verify shelter dimensions for forward and rear facing shelters**)
  - ◇ Shelter setback 4 ft from curb and 2 ft from raised cycle track (clearance for rear of shelter)
- **RTA will provide transit zone dimensions for articulated bus with rear facing bus shelter**
- 120 ft bus pad (concrete pad in roadway)
- Optimally, the transit waiting environment (TWE) or overall bus zone would share space with the parking lane along the same side of Lorain Ave

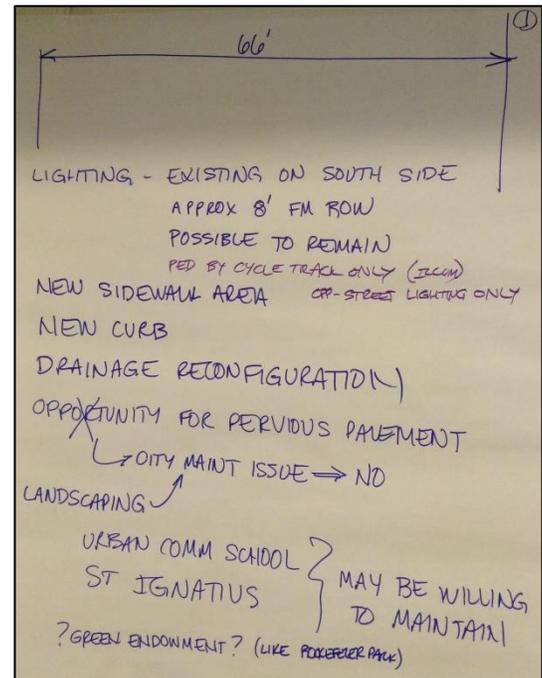


- Bus boarding area (TWE) cannot share space with raised cycle track
- It may be possible to locate bus shelters away from intersections to allow for provision of left turn lane.
  - ◇ Need to consider shelter size (if needed) and possibility of rear facing shelter to minimize width requirement
  - ◇ 2 ft offset required between shelter and raised cycle track
  - ◇ Possible intersections where this may be needed are: W.24th Street, W.25th Street, Fulton, W.44th Street, W.65th Street
  - ◇ **RTA will verify feasibility of providing shelters before or beyond the left turn bay at these intersections.**
  - ◇ **RTA to verify all bus stop locations and whether or not a shelter is needed at each bus stop location.**



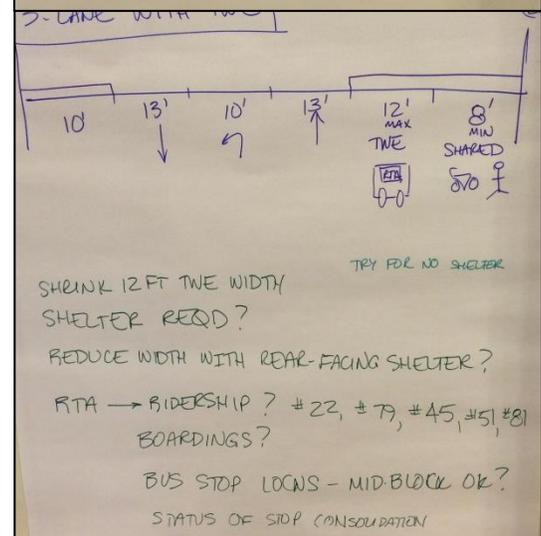
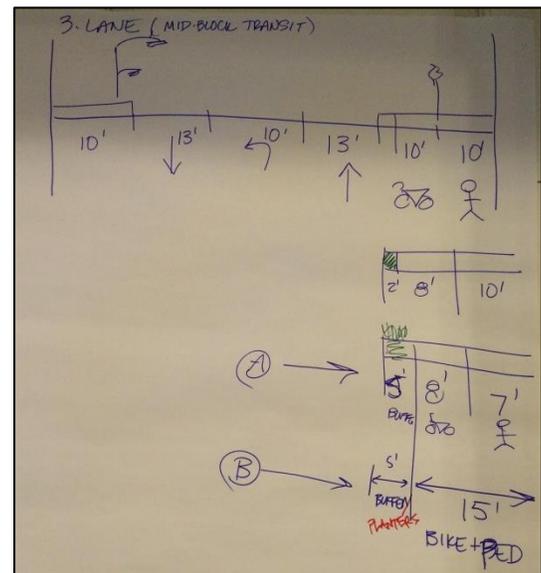
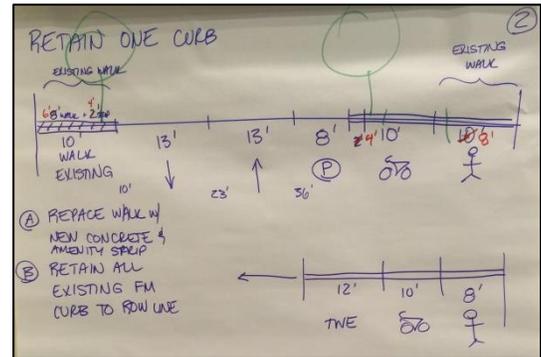
## 2. Roadway Cross-Section

- After discussion regarding potential reconfiguration of the roadway, the group agreed with Jim's suggestion to retain one curb in place to avoid costs associated with curb relocation, particularly drainage costs. As such, every alternative moving forward involves the relocation of at most one curb line.
  - ◇ There are two options for work done on the existing curb/sidewalk on the south side, and the cost estimate will include options that address both.
    - Retain existing sidewalk from curb to right-of-way line. Replace only damaged sections of sidewalk, as needed.
    - Enhanced Condition: Replace entire sidewalk area with new concrete sidewalk, curb, amenity strip, and trees.
  - ◇ The sidewalk on the north side will be replaced in its entirety, including sidewalk, curb, and raised cycle track.
  - ◇ Although pervious pavement could be provided, it presents a maintenance issue for the city. As such, pervious pavement will not be estimated for this project.
  - ◇ Landscaping also creates a maintenance issue for the city. As such, landscaping should be limited to only trees. Additional landscaping could be provided at specific areas where it can be maintained by non-city entities, and where those commitments are made. Examples cited are along the Saint Ignatius High School (SIHS) campus and by the Urban Community School.





- ◇ There was discussion regarding the value of creating a green endowment, similar to what exists for Rockefeller Park, to enable the city to have a funding source to maintain green areas for complete street projects like this one. The group agreed that this concept bears investigations by the city, as it would be of value for future projects.
- Lighting: existing roadway lighting is on **both** sides, located approx. 8 ft in from the right-of-way line.
  - ◇ Pedestrian scale lighting should be provided for the raised cycle track only (off-street lighting). Power for ped lighting will be buried.
- Roadway configuration (66 ft right-of-way). Ped-scale lighting locations will be identified for each configuration.
  - ◇ Two travel lanes, can accommodate bus stop TWE at intersections.
    - 10 ft walk
    - 13 ft travel
    - 13 ft travel
    - 8 ft parking (used for bus stop TWE, as needed)
    - 4 ft buffer
    - 10 ft raised cycle track
    - 8 ft sidewalk
  - ◇ Three lane section, includes turn lane at intersection. Bus stops/TWEs provided at mid-block locations where left turn lane is not required.
    - 10 ft walk
    - 13 ft travel
    - 10 ft left turn
    - 13 ft travel
    - 5 ft buffer/planting strip
    - 8 ft raised cycle track + 7 ft sidewalk OR 15 ft shared bike+ped
  - ◇ Three lane section where TWE required at intersection
    - 10 ft walk
    - 13 ft travel
    - 10 ft left turn
    - 13 ft travel
    - 12 ft bus stop/TWE
    - 8 ft shared bike+ped \*

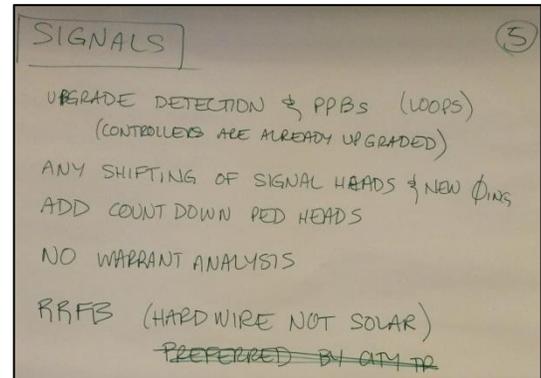


\* Note: The group agreed that 8 ft is inadequate for a shared bike+ped facility. As such, if a TWE is required at an intersection, it would be best if a shelter is not needed. If a shelter is required, it should be rear-facing to reduce the TWE width which would allow the shared bike+ped space to be wider than 8 ft.



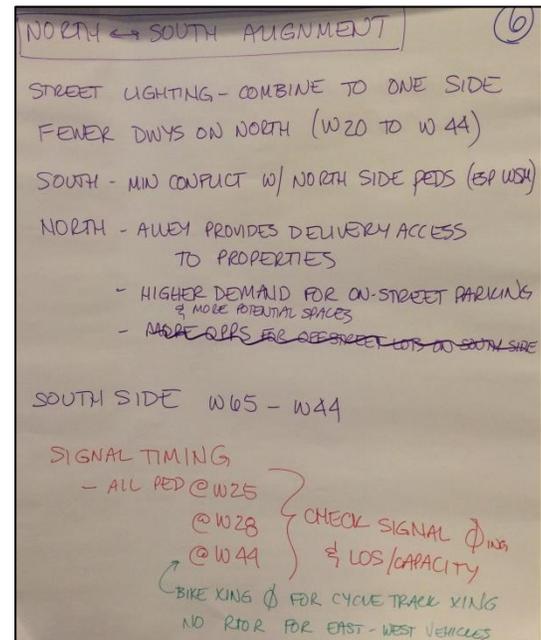
### 3. Traffic Signals

- All signals will require new detection (loops on cross streets) and PPBs. (Note: controllers along the corridor have already been upgraded, per the city).
- Project will need to determine if shifting of signal heads is required (at any/all intersections)
- Project will need to determine if new phasing is required (at any/all intersections)
- Add countdown ped heads at all intersections, all approaches
- The project will not include signal warrant analysis and/or removal of any potentially unwarranted signals.
- Provision of any RRFBs should be hard wired, not solar-powered.
- Signal timing
  - ◇ Provide all-ped phase at W.25th St, W.28th St, W.44th St intersections (check signal phasing and LOS/capacity)
  - ◇ Create bike crossing phase (bikeway only) for cycletrack crossing, with no RTOR for east-west vehicles



### 4. Cycle-Track Location: North vs. South Side Alignment

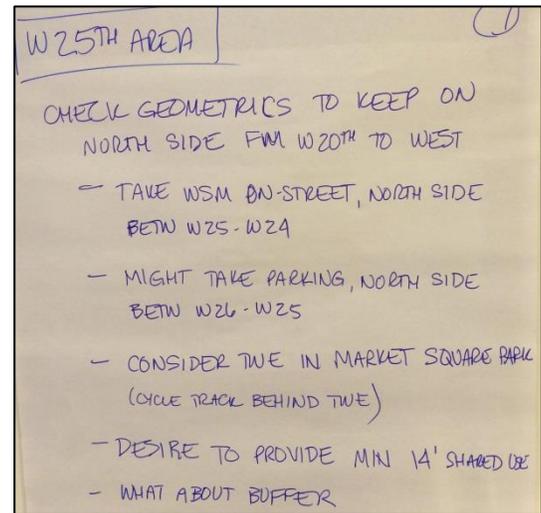
- Combine street lighting on one side
- North side:
  - ◇ Fewer driveways along north side of Lorain (W.20th Street to W.44th Street)
  - ◇ Alley provides delivery access to properties
  - ◇ Higher demand for on-street parking by existing businesses
  - ◇ More potential on-street parking (due to fewer curb cuts)
- South side:
  - ◇ Minimal pedestrian conflicts with north side pedestrian generators, especially West Side Market
  - ◇ Connect to Zone Rec Center on south side
- Recommendation: Raised cycle track on north side of Lorain from W.20th Street to W.44th Street. Shift to south side from W.44th Street to W.65th Street. Create unique, obvious bikeway crossing at W.44th Street intersection; consider diagonal crossing with separate bikeway phase.





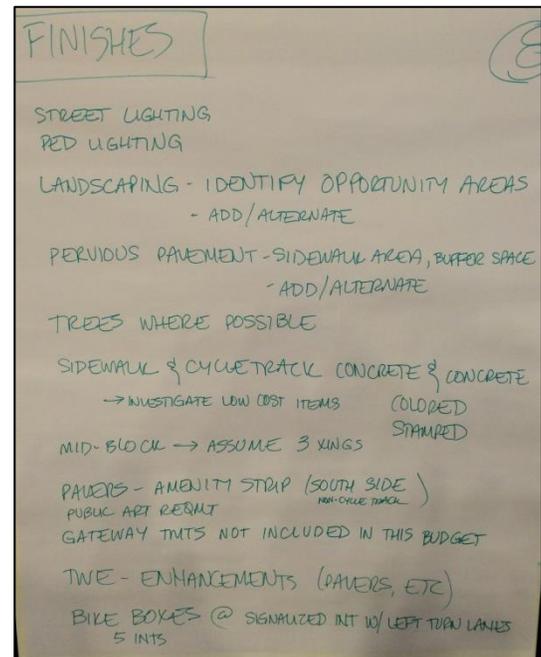
### 5. W.25th Street Area

- Check geometrics to ensure raised cycle track can be accommodated along the north side of Lorain Ave from W.20th Street west through W.25th Street, across W.28th Street and beyond, to W.44th Street
- Take WSM on-street, north side between W.24th Street-W.25th Street
- Might have to take parking along the north side of Lorain between W.24th Street-W.25th Street
- Consider the TWE along the south side of Market Square Park with the routing of the raised cycle track through Market Square Park (raised cycle track should be located behind/north of the TWE)
- Provide minimum 14 ft shared use bike+ped facility
- Investigate any buffer requirement (*NOACA to check on upcoming revisions to bicycle facility design standards*)



### 6. Corridor Finishes and Other Elements

- Provide street lighting (consolidated on one side)
- Provide pedestrian scale lighting (for raised cycle track only; provide opposite side pedestrian lighting as add/alternate bid item)
- Identify areas for landscaping opportunities; provide as add/alternate bid item
- Pervious pavement: provide as add/alternate bid item for sidewalk and buffer areas only. *Note: Clarify if the City wants this to be included due to maintenance concerns. This discussion of sidewalk materials occurred later and contradicts the earlier recommendation against pervious pavement.*
- Provide trees where possible
- Sidewalk and raised cycle track will be concrete
  - ◇ Investigate low cost options for concrete finishes (colored, stamped, other finishes). Include areas where bicycle and pedestrian traffic are separate, define cycle track and sidewalk separation with band of same accent pavement as is used in buffer zone.
- Provide 2 mid-block crossings at SIHS and one major pedestrian crossing at W. 30th Street in the form of colored, stamped concrete crossings with pedestrian refuges areas; include use of RRFB's and HAWK





single as add/alternate bid items. These improvements at SIHS and St. Ignatius should be separate from the others to facilitate future cost-sharing conversations.

- Provide improved intersections and crosswalks at W.24<sup>th</sup>-Gehring, W. 25th, Fulton, W.65th, in the form of colored, stamped concrete in the street and unit pavers in pedestrian areas, as add/alternate bid items
- Provide improved crosswalk at W. 20th, in the form of colored, stamped concrete, as an add/alternate bid item. (This was recommended in the W. 25th TOD Plan.)
- Provide planters on both sides of Lorain, between W. 20th and Abbey, as an add/alternate bid item (as recommended in W. 25th TOD Plan.)
- Provide pavers in the amenity strip along the south/non-raised cycle track side of the corridor and north buffer zone, both as add/alternate bid items.
- Provide bicycle parking
- Provide public art (opportunity to continue W. 25th Street trend of bike racks as public art).
- Gateway treatments are not included in this project budget , other than pavement improvements listed above.
- Provide TWE enhancements, at maintenance level appropriate for GCRTA (pavers, landscaping, trash receptacles).
- Provide bike boxes at signalized intersections with left turn lanes (5 intersections) as an add/alternate bid item. ***Need to verify this component with City Traffic Engineering as it may not be consistent with their policy.***
- Replace parking meters with pay stations, to reduce clutter
- All improvements are up to ROW line only. There are areas where sidewalk pavement/apparent public realm extend beyond the ROW to building faces. Coordinate with individual property owners on all additional enhancements between building face and ROW line. All enhancements in this area to be paid for by the individual property owners.



## ACTION ITEMS

### RTA

1. Verify if there is a preference for near or far side bus stops at each intersection along the corridor, for both eastbound and westbound stops between W.20<sup>th</sup> and W.65<sup>th</sup> Streets.
2. Provide dimensions for transit zone to accommodate articulated buses for both forward and rear facing shelters. Include shelter dimensions and setbacks (from back of curb and rear clearance). *Note: Currently design expectations are based on 12 ft x 100 ft.*
3. Provide locations of all bus stops along the Lorain Ave corridor. Include whether or not a shelter is required at each bus stop location. If a shelter is required, provide the necessary shelter size.
4. Determine if it is possible to locate the bus stop in advance of or after (for near/far side stops) at these intersections: W.24<sup>th</sup> Street, W.25<sup>th</sup> Street, Fulton, W.44<sup>th</sup> Street, W.65<sup>th</sup> Street.

### NOACA

1. Check on upcoming revisions to bicycle facility design standards. Of particular interest are requirements for buffers and other constraints that would affect cross section width requirements to accommodate the proposed raised cycle track.

### CITY

1. Clarify if the City wants to include pervious pavement for sidewalks as an add/alternate bid item (Section 6, Corridor Finishes and Other Elements). The discussion of sidewalk materials occurred later and contradicts the earlier recommendation against pervious pavement.
2. Verify whether the use of bike boxes at signalized intersections with left turn lanes is component with City Traffic Engineering as it may not be consistent with their policy.

## FOLLOW-UP INFORMATION FROM RTA

Below are GCRTA's responses to the questions asked of us at the November Lorain Avenue Streetscape meeting. Questions 1-4 were answered by Service Planning (Jonathan Ciesla) and question 5 was answered by Programming and Planning (Amy Snell). I have copied our supervisors for their information. If there are any questions related to these answers, please contact the appropriate person.

Thank you,  
Jonathan Ciesla  
Planner III  
Greater Cleveland Regional Transit Authority  
1240 W. 6th Street  
Cleveland, OH 44113  
(P) 216-771-4023

1. Question: What is the minimum distance for a bus/TWE if the curb is at grade with the bus?

*Answer:*

GCRTA can specify the minimum length of curb needed for a bus stop. It will need to be a minimum of 100' for the bump out/nub. 120' is preferred which would accommodate a 40' and 60' stopping at the same stop with



20' of interstop space (space between buses). , This will also limit the potential for buses to block parked vehicles.

2. Question: Does the bus platform need to be the entire length of the bus or can back side of the bus cover parked cars for on street parking as long as it's not a far side stop?

Answer:

A minimum of 100' is needed.

3. Question: Can we move stops 100' from an intersection where there is a left turn?

Answer:

The only intersections that would need a left turn lane are W.24<sup>th</sup>, W.25<sup>th</sup>, Fulton, W.44<sup>th</sup>, and W.65<sup>th</sup>. Of these intersections, three will not impact the intersections. Two need to remain nearside and will impact the intersections.

W. 24<sup>th</sup>, W.25<sup>th</sup>, and Fulton are currently (and planned to remain) farside stops; thus, they will not impact the intersection. Of note, there appears to be a larger right-of-way (ROW) at W.24<sup>th</sup>.

W. 44<sup>th</sup> and W.65<sup>th</sup> are currently (and planned to remain) nearside stops. W.44<sup>th</sup> cannot be moved because it would greatly offset bus stop spacing and negatively affect customers. W. 65<sup>th</sup> cannot be moved because it is imperative to stop at Lorain and W.65<sup>th</sup>. This is where #45 intersects the #22 and transfers need to be convenient.

4. Question: What is the ridership for the westbound Lorain Avenue and W.25th farside bus stop?

Answer:

Stop ID 05925 is the westbound Lorain Avenue and W.25<sup>th</sup> farside bus stop. Approximately 588 weekday customers utilize this stop (boarding and alighting).

5. Question: Any updates regarding the W.25/Market District TOD Plan?

Answer:

There are no new developments regarding the implementation of the TOD plan that was completed in 2013. We have no immediate plans to redo the turn around in front of W.25 street but we have agreed that we would be willing to reduce pavement along the station if any development forms around the area. The W.25 Station itself just completed some renovations, including painting and routine updates.

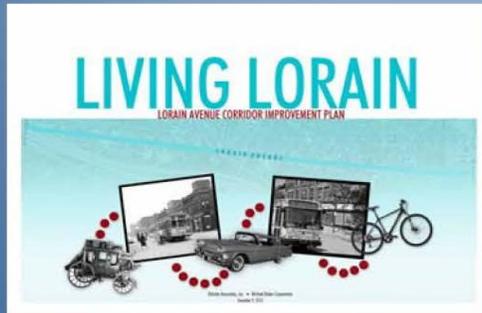
## POWER POINT



## AGENDA

1. Workshop Introduction
  - a) *Project history*
  - b) *Workshop purpose*
  - c) *Design considerations*
2. Workshop
  - a) *Discussion of operational considerations*
    - Traffic
    - Transit
    - Design elements
    - Other considerations?
  - b) *Design concept development*
    - Raised cycle track alignment
    - Traffic and transit break out groups
3. Summary and Recommendations

## Project History



## Workshop Purpose

Develop a design concept for a sidewalk level bikeway (raise cycle track) on Lorain Avenue from W.20<sup>th</sup> Street to W.65<sup>th</sup> Street. The design concept will accommodate transit operations, incorporate pedestrians facilities, and maximize operational safety for all travel modes.

## Raised Cycle Track

Indianapolis Cultural Trail



## Intersections

Indianapolis Cultural Trail



## Transit

Indianapolis Cultural Trail



## AASHTO

### Roadway Standards & Guidelines

#### “Raise Cycle Track”

- 14 ft min width (10 ft path + 2 ft clear zones)
- Physical barrier or railing should be provided between the cycle track and roadway. Barrier should not impair sight distance at intersections.

#### Bike Lane

- 4 ft min width (5 ft preferred)
- 13 ft min lane width adjacent to bike lane (14 ft preferred)
- Contrasting green pavement may be used in bike lanes and extensions through intersections and other conflict areas

## AASHTO Roadway Standards & Guidelines

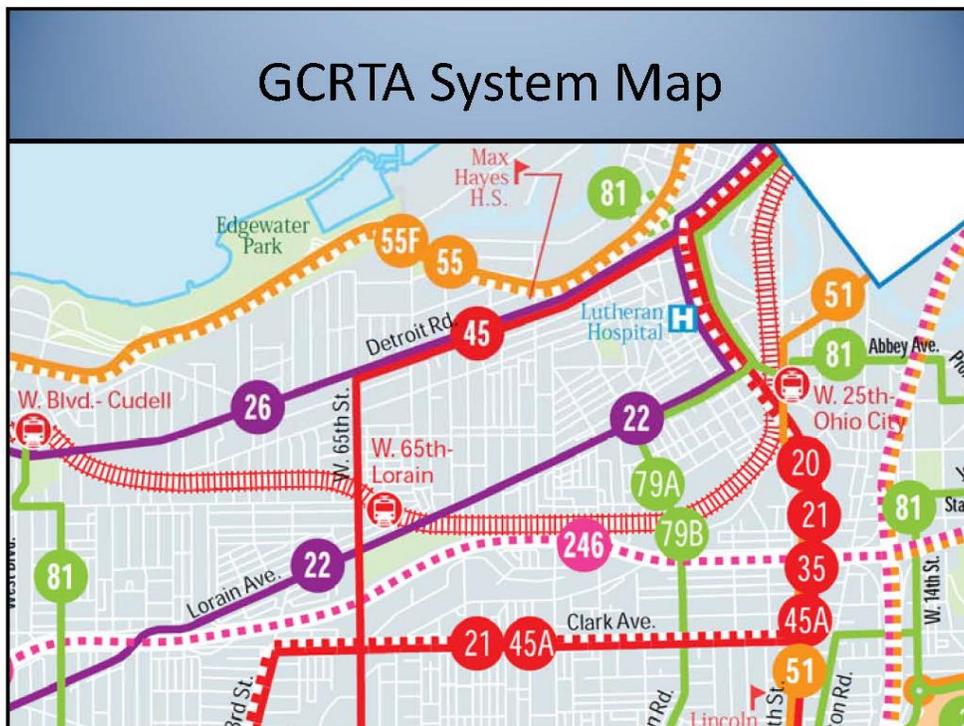
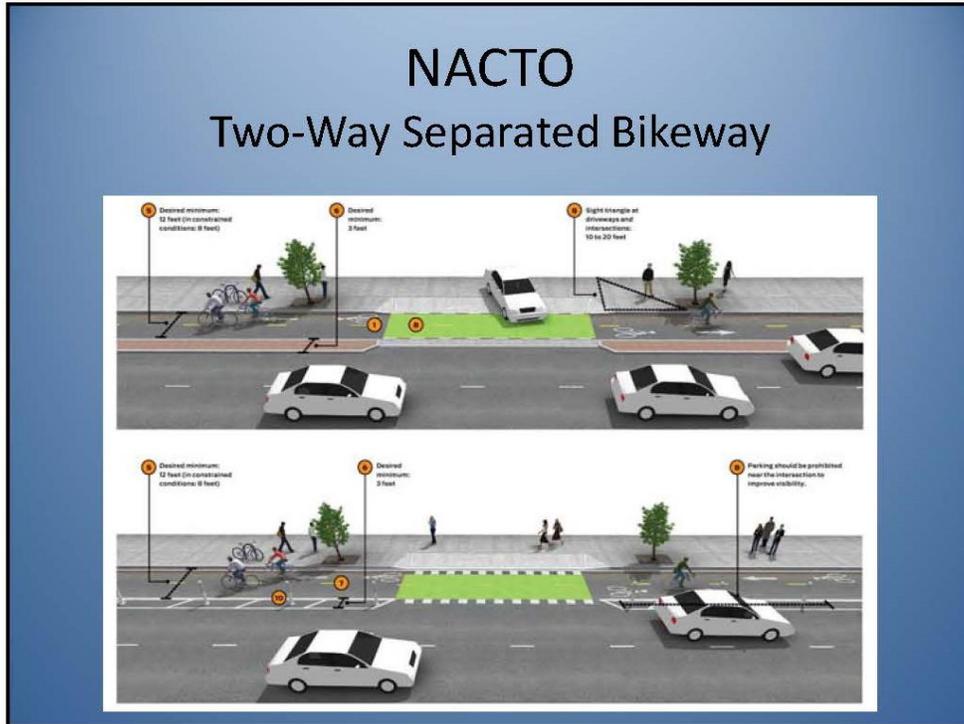
### General Bikeway Guidance

- Actuated signals should be designed to detect the presence of bicyclists.
- Place bicycle symbol every 100 ft in urban areas
- Pedestrian scale lighting is preferred
- Typical design speeds = 18 mph

## ODOT Roadway Standards & Guidelines

### Roadway

- Travel lanes = 12 ft wide, with no curbs on either side.
- With curb, adjacent lane should be 1' wider for each curb
  - A lane with curb on one side = 13' wide,
  - A lane with curb on both sides = 14' wide.
- Turn lane = 10 ft min



## Transit Standards & Guidelines

- Maintain integrity of TWE
- Provide 8'x5' passenger boarding area
- Accommodate \_\_\_'x\_\_\_' bus shelter
- Others?

## NACTO



## Lorain Ave Two-Lane Road with Separated Bikeway



## Lorain Ave Three-Lane Road with Separated Bikeway



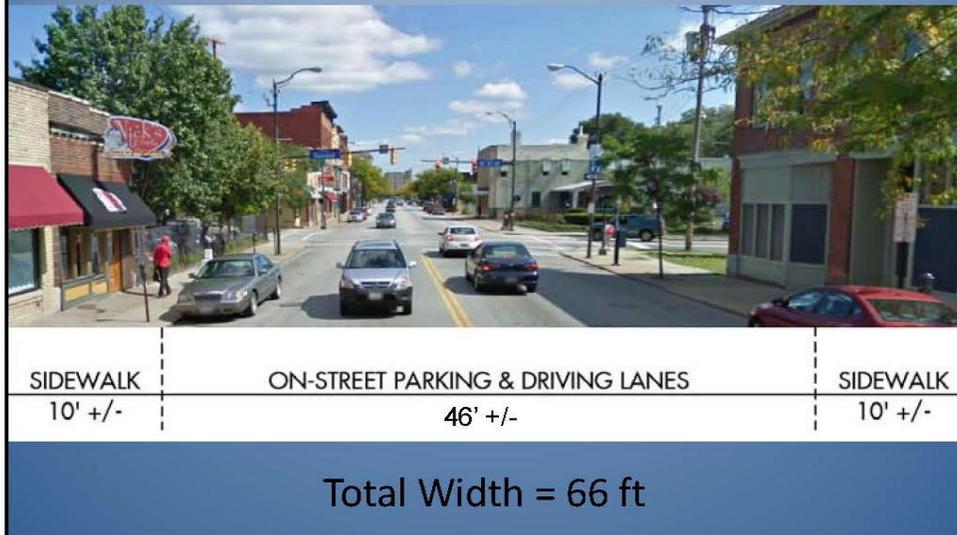
Lorain Avenue Intersection		Existing Conditions		2-Lane with Median		2-Lane	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
W. 20 <sup>th</sup> Street	LOS	B	B	B	C	B	C
	Delay	13.4	15.6	14.8	20.5	16.6	23.1
	v/c	0.37	0.36	0.69	0.67	0.70	0.63
W. 24 <sup>th</sup> Street/ Gehring Avenue	LOS	B	B	C	C	C	C
	Delay	13.1	15.1	20.6	21.7	24.6	29.5
	v/c	0.36	0.44	0.67	0.78	0.57	0.96
W. 25 <sup>th</sup> Street	LOS	C	B	C	C	C	C
	Delay	22.6	18.3	23.7	21.8	25.8	31.0
	v/c	0.75	0.74	0.76	0.82	0.77	0.84
W. 28 <sup>th</sup> Street	LOS	A	A	A	B	B	B
	Delay	6.6	7.6	7.6	10.7	15.4	10.1
	v/c	0.35	0.38	0.61	0.62	0.62	0.61
W. 30 <sup>th</sup> Street	LOS	A	A	A	A	A	A
	Delay	0.70	3.4	1.0	3.2	2.3	3.3
	v/c	0.15	0.24	0.28	0.30	0.28	0.29
W. 32 <sup>nd</sup> Street	LOS	A	A	A	A	A	A
	Delay	3.7	3.2	4.3	3.4	7.9	5.9
	v/c	0.48	0.48	0.49	0.48	0.55	0.51
Fulton Road	LOS	A	A	B	B	B	B
	Delay	7.1	7.1	11.8	10.3	13.1	11.1
	v/c	0.53	0.47	0.81	0.63	0.81	0.74
W. 41 <sup>st</sup> Street/ Randall Road	LOS	A	A	A	A	B	A
	Delay	8.9	7.3	9.9	9.6	12.6	9.4
	v/c	0.60	0.37	0.60	0.66	0.65	0.58
W. 44 <sup>th</sup> Street	LOS	B	C	B	C	C	D
	Delay	19.5	20.5	19.6	20.2	22.8	38.3
	v/c	0.61	0.72	0.61	0.73	0.74	0.97

## Intersections

<u>Signalized</u>	<u>Unsignalized</u>	<u>Unwarranted?</u>
W.20 <sup>th</sup>	W.26 <sup>th</sup>	W.28 <sup>th</sup> ?
<b>W.24<sup>th</sup> -Gehring</b>	W.29 <sup>th</sup>	W.30 <sup>th</sup> ?
<b>W.25<sup>th</sup></b>	W.33 <sup>rd</sup>	W.32 <sup>nd</sup> ?
W.28 <sup>th</sup>	W.38 <sup>th</sup>	W.48 <sup>th</sup> ?
W.30 <sup>th</sup>	W.42 <sup>nd</sup>	W.53 <sup>rd</sup> ?
W.32 <sup>nd</sup>	W.45 <sup>th</sup>	W.58 <sup>th</sup> ?
<b>Fulton</b>	W.47 <sup>th</sup>	
W.41 <sup>st</sup>	W.50 <sup>th</sup>	
<b>W.44<sup>th</sup></b>	W.52 <sup>nd</sup>	
W.48 <sup>th</sup>	W.54 <sup>th</sup>	
W.53 <sup>rd</sup>	W.55 <sup>th</sup>	
W.58 <sup>th</sup>	W.57 <sup>th</sup>	
W.65 <sup>th</sup>	W.61 <sup>st</sup>	

**Bold indicates E-W left turn lanes needed**

## Lorain Ave: Existing Right-of-Way



## Design Elements

- Roadway cross section
- Bicycle facility location (north and/or south side of Lorain Avenue)
- Intersection configuration (turn lanes, traffic control, interface with raised cycle track bikeway)
- Changes in north-south street configuration, function and access
- Traffic signals (replacement, reconfiguration, warrant/removal analysis; determine what to include in this project)
- Mid-block crossing locations and treatments
- Median location(s)
- Bus stop locations and transit waiting environments
- Interface of raised cycle track bicycle facility with TWEs
- On-street parking
- Sidewalk width and finishes (including raised cycle track ; level of investment may vary for different sections of the corridor)
- Streetscape and landscape elements
- Green infrastructure

## Design Considerations

### Roadway & Raised Cycle Track Configuration

- 3-lane and 2-lane sections
- North/south side of Lorain
- Location of north-south transition(s), if applicable
- On-street parking locations
- Cross-section configuration (roadway lanes, bikeway, sidewalk, TWEs, utility poles, drainage)

### Roadway & Intersections

- Signalized intersection configuration
- Unsignalized intersection configuration
- Unwarranted signal removal (?)
- Mid-block crossing configuration(s)
- Roadway and sidewalk dimensions

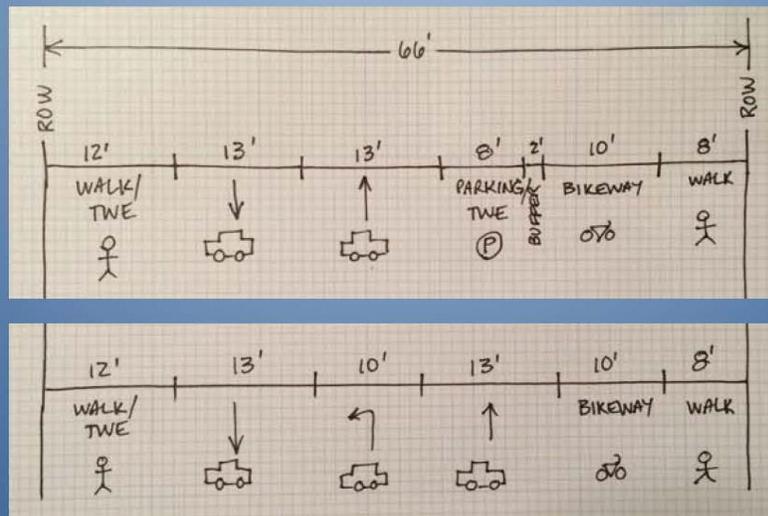
### Transit

- Bus stop locations
- Interface of TWEs with raised cycle track

### Urban Design Elements

- Sidewalk and raised cycle track finishes
- Mid-block crossing finishes
- Streetscape
- Green infrastructure
- Landscaping

## Roadway Cross Section



## Roadway & Raised Cycle Track Configuration

- 3-lane and 2-lane sections
- North/south side of Lorain
- Location of north side-south side transition(s), if applicable
- On-street parking locations
- Cross-section configuration (roadway lanes, bikeway, sidewalk, TWEs, utility poles, drainage)

## Roadway & Intersections

- Signalized intersection configuration
- Unsignalized intersection configuration
- Unwarranted signal removal (?)
- Mid-block crossing configuration(s)
- Roadway and sidewalk dimensions

## Transit

- Bus stop locations
- Interface of bus stops and on-street parking
- Interface of TWEs with raised cycle track
- Other?

## Urban Design Elements

- Sidewalk and raised cycle track finishes
- Mid-block crossing finishes
- Streetscape
- Green infrastructure
- Landscaping



## APPENDIX B: COST ESTIMATE

**Project: LORAIN AVENUE**

Prepared for: Ohio City Incorporated  
 2525 Market Avenue, Suite A  
 Cleveland, Ohio 44113

Prepared By: Jim Shea, PE, PTOE  
 Michael Baker  
 1228 Euclid Avenue, Suite 1050  
 Cleveland, Ohio 44115

OPTION 1
CYCLE TRACK IMPROVEMENTS (NORTHSIDE W 20 to W 44 & SOUTHSIDE W 44 to W 65)
NO STREETSCAPING OR LANDSCAPING INCLUDED

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
<b>ROADWAY</b>						
1	201	LUMP	CLEARING AND GRUBBING	LS	\$ 15,000.00	\$ 15,000.00
2	202	11,000	PAVEMENT REMOVED	SY	\$ 9.00	\$ 99,000.00
3	202	400	PAVEMENT REMOVED FOR DRIVES	SY	\$ 10.00	\$ 4,000.00
4	202	85,000	WALK REMOVED	SF	\$ 1.25	\$ 106,250.00
5	202	9,800	CURB REMOVED	FT	\$ 6.00	\$ 58,800.00
6	202	300	PIPE REMOVED, 24" AND UNDER	FT	\$ 18.00	\$ 5,400.00
7	202	34	CATCH BASIN REMOVED	EACH	\$ 350.00	\$ 11,900.00
8	203	1800	EXCAVATION	CY	\$ 18.00	\$ 32,400.00
9	203	4500	EMBANKMENT, AS PER PLAN	CY	\$ 15.00	\$ 67,500.00
10	204	14,500	SUBGRADE COMPACTION	SY	\$ 1.00	\$ 14,500.00
11	204	8	PROOF ROLLING	HOUR	\$ 150.00	\$ 1,200.00
12	204	2,900	GEOTEXTILE FABRIC	SY	\$ 2.00	\$ 5,800.00
13	608	51,000	6" CONCRETE WALK - SIDEWALK	SF	\$ 6.00	\$ 306,000.00
14	608	115,000	6" CONCRETE WALK - CYCLE TRACK & BUFFER	SF	\$ 6.00	\$ 690,000.00
15	608	38	CURB RAMP LAYOUT COMPLETE IN PLACE WITH TILE, AS PER PLAN	CORNER	\$ 1,000.00	\$ 38,000.00
16	623	29	MONUMENT BOX ADJUSTED TO GRADE	EACH	\$ 450.00	\$ 13,050.00
17	SPECIAL	1,000	PIPE CLEANOUT	FT	\$ 15.00	\$ 15,000.00
18	SPECIAL	100	UNDERCUTTING SUBGRADE AND SUBBASE	CY	\$ 60.00	\$ 6,000.00
					<b>SUBTOTAL</b>	<b>\$ 1,489,800.00</b>
<b>EROSION CONTROL</b>						
19	659	2	SOIL ANALYSIS TEST	EACH	\$ 150.00	\$ 300.00
20	659	234	TOPSOIL	CY	\$ 35.00	\$ 8,190.00
21	659	2,112	SEEDING AND MULCHING	SY	\$ 1.25	\$ 2,640.00
22	659	0.29	COMMERCIAL FERTILIZER	TON	\$ 800.00	\$ 232.00
23	659	0.44	LIME	ACRE	\$ 400.00	\$ 176.00
24	659	12	WATER	MGAL	\$ 20.00	\$ 240.00
					<b>SUBTOTAL</b>	<b>\$ 11,778.00</b>

**Project: LORAIN AVENUE**

Prepared for: Ohio City Incorporated  
 2525 Market Avenue, Suite A  
 Cleveland, Ohio 44113

Prepared By: Jim Shea, PE, PTOE  
 Michael Baker  
 1228 Euclid Avenue, Suite 1050  
 Cleveland, Ohio 44115

<b>OPTION 1</b>
<b>CYCLE TRACK IMPROVEMENTS (NORTHSIDE W 20 to W 44 &amp; SOUTHSIDE W 44 to W 65)</b>
<b>NO STREETSCAPING OR LANDSCAPING INCLUDED</b>

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
<b>DRAINAGE</b>						
25	605	500	6" UNCLASSIFIED PIPE UNDERDRAINS WITH FABRIC WRAP	FT	\$ 11.00	\$ 5,500.00
26	605	9700	6" BASE PIPE UNDERDRAINS WITH FABRIC WRAP	FT	\$ 10.00	\$ 97,000.00
27	611	340	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	FT	\$ 15.00	\$ 5,100.00
28	611	200	6" CONDUIT, TYPE E	FT	\$ 12.00	\$ 2,400.00
29	611	400	12" CONDUIT, TYPE B, 706.08, AS PER D-32	FT	\$ 150.00	\$ 60,000.00
30	611	100	12" CONDUIT, TYPE B, DUCTILE IRON PIPE ANSI CLASS 52, PUSH-ON JOINTS AND FITTINGS, AS PER D-32	FT	\$ 150.00	\$ 15,000.00
31	611	200	12" CONDUIT, TYPE C, AS PER PLAN	FT	\$ 100.00	\$ 20,000.00
32	611	200	15" CONDUIT, TYPE B, 706.08, AS PER D-32	FT	\$ 150.00	\$ 30,000.00
33	611	30	CATCH BASIN, CITY OF CLEVELAND CB-1, AS PER D-34	EACH	\$ 3,000.00	\$ 90,000.00
34	611	4	CATCH BASIN, CITY OF CLEVELAND CB-2, AS PER D-34	EACH	\$ 4,400.00	\$ 17,600.00
35	611	34	CATCH BASIN ADJUSTED TO GRADE	EACH	\$ 600.00	\$ 20,400.00
36	611	42	VAULT/MANHOLE ADJUSTED TO GRADE, AS PER PLAN	EACH	\$ 800.00	\$ 33,600.00
37	611	25000	MISCELLANEOUS METAL (WPC), AS PER D-72	LB	\$ 1.50	\$ 37,500.00
					<b>SUBTOTAL</b>	<b>\$ 434,100.00</b>
<b>PAVEMENT</b>						
38	251	2,700	PARTIAL DEPTH PAVEMENT REPAIR	SY	\$ 30.00	\$ 81,000.00
39	254	54,000	PAVEMENT PLANING, ASPHALT CONCRETE	SY	\$ 4.50	\$ 243,000.00
40	254	100	PATCHING PLANED SURFACE	SY	\$ 50.00	\$ 5,000.00
41	255	9,700	FULL DEPTH PAVEMENT SAWING	FT	\$ 1.25	\$ 12,125.00
42	304	1,400	AGGREGATE BASE	CY	\$ 45.00	\$ 63,000.00
43	305	310	9" CONCRETE BASE, AS PER D-23 AND D-24	CY	\$ 180.00	\$ 55,800.00
44	407	3,075	TACK COAT	GAL	\$ 3.00	\$ 9,225.00
45	407	1,640	TACK COAT FOR INTERMEDIATE COURSE	GAL	\$ 3.00	\$ 4,920.00
46	448	41,000	1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22, AS PER D-29	SY	\$ 8.00	\$ 328,000.00
47	448	255	0" MIN. ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22, AS PER D-29	CY	\$ 175.00	\$ 44,625.00
48	448	41,000	1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22, AS PER D-29	SY	\$ 7.00	\$ 287,000.00

**Project: LORAIN AVENUE**

Prepared for: Ohio City Incorporated  
 2525 Market Avenue, Suite A  
 Cleveland, Ohio 44113

Prepared By: Jim Shea, PE, PTOE  
 Michael Baker  
 1228 Euclid Avenue, Suite 1050  
 Cleveland, Ohio 44115

OPTION 1
CYCLE TRACK IMPROVEMENTS (NORTHSIDE W 20 to W 44 & SOUTHSIDE W 44 to W 65)
NO STREETSCAPING OR LANDSCAPING INCLUDED

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
49	452	400	8" NON-REINFORCED CONCRETE PAVEMENT, AS PER D-23 AND D-24	SY	\$ 65.00	\$ 26,000.00
50	452	25	NON-REINFORCED CONCRETE PAVEMENT, MISC.: CONCRETE PAVEMENT BEHIND DRIVES AND WALK	SY	\$ 75.00	\$ 1,875.00
51	SPECIAL	20	SURCHARGE FOR CLASS MS CONCRETE, AS PER D-25	CU YD	\$ 12.00	\$ 240.00
52	SPECIAL	20	SURCHARGE FOR CLASS FS CONCRETE, AS PER D-26	CU YD	\$ 12.00	\$ 240.00
53	609	11,000	CURB, TYPE 6	FT	\$ 15.00	\$ 165,000.00
					<b>SUBTOTAL</b>	<b>\$ 1,327,050.00</b>
<b>WATER WORK</b>						
54	611	15	WATER MANHOLE ADJUSTED TO GRADE, AS PER D-39	EACH	\$ 700.00	\$ 10,500.00
55	638	71	VALVE BOX ADJUSTED TO GRADE, AS PER D-39	EACH	\$ 400.00	\$ 28,400.00
56	638	75	SERVICE BOX ADJUSTED TO GRADE, AS PER D-39	EACH	\$ 150.00	\$ 11,250.00
57	SPECIAL	10	EXTEND AND ADJUST HYDRANT TO GRADE, TYPE A	EACH	\$ 3,000.00	\$ 30,000.00
58	SPECIAL	7	EXTEND AND ADJUST HYDRANT TO GRADE, TYPE B	EACH	\$ 2,500.00	\$ 17,500.00
59	SPECIAL	2	HYDRANT ADJUSTED TO GRADE	EACH	\$ 1,500.00	\$ 3,000.00
60	611	15000	MISCELLANEOUS METAL (CWD), AS PER D-72	LB	\$ 2.00	\$ 30,000.00
					<b>SUBTOTAL</b>	<b>\$ 130,650.00</b>
<b>LIGHTING</b>						
61	625	95	LIGHT POLE, DECORATIVE	EACH	\$ 2,200.00	\$ 209,000.00
62	625	95	LIGHT POLE FOUNDATION, AS PER PLAN	EACH	\$ 800.00	\$ 76,000.00
63	625	2,850	NO. 10 AWG POLE AND BRACKET CABLE	FT	\$ 1.00	\$ 2,850.00
64	625	9,500	CONDUIT, 3", 725.051	FT	\$ 20.00	\$ 190,000.00
65	625	95	LUMINAIRE, CONVENTIONAL, AS PER PLAN	EACH	\$ 320.00	\$ 30,400.00
66	625	9,500	TRENCH	FT	\$ 5.00	\$ 47,500.00
67	625	95	PULL BOX, MISC.:	EACH	\$ 585.00	\$ 55,575.00
68	625	95	GROUND ROD, AS PER PLAN	EACH	\$ 154.00	\$ 14,630.00
69	625	9,500	PLASTIC CAUTION TAPE, AS PER PLAN	FT	\$ 0.30	\$ 2,850.00
70	625	95	LIGHTING, MISC.: FOUNDATION TEST HOLE	EACH	\$ 500.00	\$ 47,500.00
					<b>SUBTOTAL</b>	<b>\$ 676,305.00</b>

**Project: LORAIN AVENUE**

Prepared for: Ohio City Incorporated  
 2525 Market Avenue, Suite A  
 Cleveland, Ohio 44113

Prepared By: Jim Shea, PE, PTOE  
 Michael Baker  
 1228 Euclid Avenue, Suite 1050  
 Cleveland, Ohio 44115

OPTION 1
CYCLE TRACK IMPROVEMENTS (NORTHSIDE W 20 to W 44 & SOUTHSIDE W 44 to W 65)
NO STREETSCAPING OR LANDSCAPING INCLUDED

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
<b>TRAFFIC CONTROL</b>						
71	630	LUMP	SIGNING - REMOVAL AND REPLACEMENT ENTIRE CORRIDOR BOTH SIDES	LS	\$ 80,000.00	\$ 80,000.00
72	644	1.80	CENTER LINE	MILE	\$ 7,000.00	\$ 12,600.00
73	644	2,000	CHANNELIZING LINE, 8"	FT	\$ 2.00	\$ 4,000.00
74	644	8,450	CHANNELIZING LINE, 8", AS PER PLAN	FT	\$ 2.00	\$ 16,900.00
75	644	624	STOP LINE	FT	\$ 7.00	\$ 4,368.00
76	644	3,100	CROSSWALK LINE	FT	\$ 3.50	\$ 10,850.00
77	644	48	LANE ARROW	EACH	\$ 140.00	\$ 6,720.00
78	644	95	BIKE LANE SYMBOL MARKING	EACH	\$ 120.00	\$ 11,400.00
					<b>SUBTOTAL</b>	<b>\$ 146,838.00</b>
<b>TRAFFIC SIGNALS</b>						
79	614	LUMP	MAINTAINING TRAFFIC, MISC.: MAINTENANCE OF TRAFFIC SIGNAL INSTALLATIONS, AS PER D-49	LS	\$ 10,000.00	\$ 10,000.00
80	630	10	SIGNING, MISC.: SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON SIGN ASSEMBLY	EACH	\$ 8,000.00	\$ 80,000.00
81	632	12	SIGNALIZATION UPGRADES	EACH	\$ 30,000.00	\$ 360,000.00
82	633	LUMP	SYSTEM ANALYSIS	LS	\$ 25,000.00	\$ 25,000.00
					<b>SUBTOTAL</b>	<b>\$ 475,000.00</b>
<b>STRUCTURES</b>						
83	511	500	BARRIER IMPROVEMNTS TO EXISTING BRIDGES	FT	\$ 800.00	\$ 400,000.00
					<b>SUBTOTAL</b>	<b>\$ 400,000.00</b>
<b>MAINTENANCE OF TRAFFIC</b>						
84	410	200	TRAFFIC COMPACTED SURFACE, TYPE A OR B, AS PER PLAN	CY	\$ 60.00	\$ 12,000.00
85	608	5,000	TEMPORARY ASPHALT CONCRETE WALK, AS PER PLAN	SF	\$ 2.00	\$ 10,000.00
86	614	180	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	\$ 30.00	\$ 5,400.00
87	614	150	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	HOURL	\$ 60.00	\$ 9,000.00

**Project: LORAIN AVENUE**

Prepared for: Ohio City Incorporated  
 2525 Market Avenue, Suite A  
 Cleveland, Ohio 44113

Prepared By: Jim Shea, PE, PTOE  
 Michael Baker  
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 Cleveland, Ohio 44115

<b>OPTION 1</b>
<b>CYCLE TRACK IMPROVEMENTS (NORTHSIDE W 20 to W 44 &amp; SOUTHSIDE W 44 to W 65)</b>
<b>NO STREETSCAPING OR LANDSCAPING INCLUDED</b>

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
88	614	75	LAW ENFORCEMENT OFFICER WITHOUT PATROL CAR FOR ASSISTANCE	HOUR	\$ 60.00	\$ 4,500.00
89	614	100	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	CY	\$ 150.00	\$ 15,000.00
90	614	480	WORK ZONE STOP LINE, CLASS I, 740.06, TYPE I	FT	\$ 6.00	\$ 2,880.00
91	614	2,880	WORK ZONE CROSSWALK LINE, CLASS I, 740.06, TYPE I	FT	\$ 5.00	\$ 14,400.00
92	616	50	WATER	MGAL	\$ 15.00	\$ 750.00
93	616	10.00	CALCIUM CHLORIDE	TON	\$ 250.00	\$ 2,500.00
					<b>SUBTOTAL</b>	<b>\$ 76,430.00</b>
			<b>TESTING</b>			
94	SPECIAL	30	ASPHALT EXTRACTION TEST, AS PER D-73	EACH	\$ 50.00	\$ 1,500.00
95	SPECIAL	30	THICKNESS OF COMPACTED ASPHALT TEST, AS PER D-73	EACH	\$ 50.00	\$ 1,500.00
96	SPECIAL	30	CONCRETE CYLINDER TEST (4 SPECIMENS PER SET), AS PER D-73	SETS	\$ 50.00	\$ 1,500.00
97	SPECIAL	30	SUBSEQUENT SLUMP AND TEMPERATURE TEST, AS PER D-73	EACH	\$ 10.00	\$ 300.00
98	SPECIAL	30	SUBSEQUENT AIR CONTENT AND TEMPERATURE TEST, AS PER D-73	EACH	\$ 10.00	\$ 300.00
99	SPECIAL	2	FLEXURAL STRENGTH OF CONCRETE (BEAM) TEST (ASTM C-78), AS PER D-73	EACH	\$ 100.00	\$ 200.00
100	SPECIAL	200	TECHNICIAN WITH NUCLEAR DENSITY METER (SUBGRADE COMPACTION, SUBBASE, ASPHALT), AS PER D-73	HOUR	\$ 50.00	\$ 10,000.00
101	SPECIAL	6	PROCTOR TEST, AS PER D-73	EACH	\$ 100.00	\$ 600.00
					<b>SUBTOTAL</b>	<b>\$ 15,900.00</b>
			<b>MISCELLANEOUS</b>			
102	614	LUMP	MAINTAINING TRAFFIC, AS PER PLAN	LS	\$ 100,000.00	\$ 100,000.00
103	619	12	FIELD OFFICE, TYPE B	MNTH	\$ 3,000.00	\$ 36,000.00
104	619	LUMP	COMPUTER EQUIPMENT FOR TYPE B FIELD OFFICE, AS PER D-46, FOR CITY OWNERSHIP	LS	\$ 2,000.00	\$ 2,000.00
105	619	12	ADDITIONAL SMARTPHONE FOR CITY INSPECTOR, AS PER D-45	MNTH	\$ 125.00	\$ 1,500.00
106	619	LUMP	DIGITAL CAMERA FOR CITY OWNERSHIP	LS	\$ 500.00	\$ 500.00
107	623	LUMP	CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN	LS	\$ 10,000.00	\$ 10,000.00
108	624	LUMP	MOBILIZATION	LS	\$ 200,000.00	\$ 200,000.00
109	832	LUMP	STORM WATER POLLUTION PREVENTION PLAN	LS	\$ 5,000.00	\$ 5,000.00
110	832	LUMP	EROSION CONTROL	LS	\$ 15,000.00	\$ 15,000.00

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NO STREETSCAPING OR LANDSCAPING INCLUDED

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
111	SPECIAL	LUMP	AS-BUILT RECORD DRAWINGS	LS	\$ 5,000.00	\$ 5,000.00
112	SPECIAL	LUMP	PRE-CONSTRUCTION VIDEOGRAPHY, AS PER PLAN	LS	\$ 2,500.00	\$ 2,500.00
113	SPECIAL	LUMP	PRE-CONSTRUCTION VIDEOGRAPHY, AS PER D-36	LS	\$ 2,500.00	\$ 2,500.00
114	SPECIAL	2	PROJECT SIGNS FURNISHED AND PLACED	EACH	\$ 750.00	\$ 1,500.00
115	SPECIAL	LUMP	ENGINEERING & CONSTRUCTION FORCE ACCOUNT (FA-1A)	LS	\$ 75,000.00	\$ 75,000.00
116	SPECIAL	LUMP	CLEVELAND WATER DEPARTMENT FORCE ACCOUNT	LS	\$ 25,000.00	\$ 25,000.00
117	SPECIAL	LUMP	CLEVELAND WATER POLLUTION CONTROL FORCE ACCOUNT	LS	\$ 50,000.00	\$ 50,000.00
					<b>SUBTOTAL</b>	<b>\$ 531,500.00</b>
<b>Estimated Project Subtotal</b>						<b>\$5,715,351</b>
<b>Contingency (30%)</b>						<b>\$1,714,605</b>
<b>Inflation 2018 (10.6%)</b>						<b>\$787,575</b>
<b>Total Probable Construction Cost</b>						<b>\$8,217,531</b>
<b>Estimated Engineering Design Fees (8% of Construction)</b>						<b>\$657,403</b>

Note: The costs shown in this estimate represent an estimate of probable construction costs prepared in good faith and with reasonable care. Michael Baker has no control over the costs of construction labor, materials, or equipment, nor over competitive bidding or negotiating methods and does not make any commitment or assume any duty to assure that bids or negotiated prices will not vary from this estimate.

Estimate does not include: R/W Land Cost, Utility Relocation Cost or Construction Engineering and Inspection Costs

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<b>OPTION 2</b>
<b>CYCLE TRACK IMPROVEMENTS (NORTHSIDE W 20 to W 44 &amp; SOUTHSIDE W 44 to W 65)</b>
<b>WITH STREETSCAPING AND LANDSCAPING INCLUDED</b>

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
<b>ROADWAY</b>						
1	201	LUMP	CLEARING AND GRUBBING	LS	\$ 15,000.00	\$ 15,000.00
2	202	11,000	PAVEMENT REMOVED	SY	\$ 9.00	\$ 99,000.00
3	202	400	PAVEMENT REMOVED FOR DRIVES	SY	\$ 10.00	\$ 4,000.00
4	202	85,000	WALK REMOVED	SF	\$ 1.25	\$ 106,250.00
5	202	9,800	CURB REMOVED	FT	\$ 6.00	\$ 58,800.00
6	202	300	PIPE REMOVED, 24" AND UNDER	FT	\$ 18.00	\$ 5,400.00
7	202	34	CATCH BASIN REMOVED	EACH	\$ 350.00	\$ 11,900.00
8	203	1800	EXCAVATION	CY	\$ 18.00	\$ 32,400.00
9	203	4500	EMBANKMENT, AS PER PLAN	CY	\$ 15.00	\$ 67,500.00
10	204	14,500	SUBGRADE COMPACTION	SY	\$ 1.00	\$ 14,500.00
11	204	8	PROOF ROLLING	hour	\$ 150.00	\$ 1,200.00
12	204	2,900	GEOTEXTILE FABRIC	SY	\$ 2.00	\$ 5,800.00
13	608	51,000	6" CONCRETE WALK - SIDEWALK	SF	\$ 6.00	\$ 306,000.00
14	608	115,000	6" CONCRETE WALK - CYCLE TRACK & BUFFER	SF	\$ 6.00	\$ 690,000.00
15	608	38	CURB RAMP LAYOUT COMPLETE IN PLACE WITH TILE, AS PER PLAN	CORNER	\$ 1,000.00	\$ 38,000.00
16	623	29	MONUMENT BOX ADJUSTED TO GRADE	EACH	\$ 450.00	\$ 13,050.00
17	SPECIAL	1,000	PIPE CLEANOUT	FT	\$ 15.00	\$ 15,000.00
18	SPECIAL	100	UNDERCUTTING SUBGRADE AND SUBBASE	CY	\$ 60.00	\$ 6,000.00
<b>SUBTOTAL</b>						<b>\$ 1,489,800.00</b>
<b>EROSION CONTROL</b>						
19	659	2	SOIL ANALYSIS TEST	EACH	\$ 150.00	\$ 300.00
20	659	234	TOPSOIL	CY	\$ 35.00	\$ 8,190.00
21	659	2,112	SEEDING AND MULCHING	SY	\$ 1.25	\$ 2,640.00
22	659	0.29	COMMERCIAL FERTILIZER	TON	\$ 800.00	\$ 232.00
23	659	0.44	LIME	ACRE	\$ 400.00	\$ 176.00
24	659	12	WATER	MGAL	\$ 20.00	\$ 240.00
<b>SUBTOTAL</b>						<b>\$ 11,778.00</b>
<b>DRAINAGE</b>						
25	605	500	6" UNCLASSIFIED PIPE UNDERDRAINS WITH FABRIC WRAP	FT	\$ 11.00	\$ 5,500.00
26	605	9700	6" BASE PIPE UNDERDRAINS WITH FABRIC WRAP	FT	\$ 10.00	\$ 97,000.00

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<b>OPTION 2</b>
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<b>WITH STREETSCAPING AND LANDSCAPING INCLUDED</b>

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
27	611	340	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	FT	\$ 15.00	\$ 5,100.00
28	611	200	6" CONDUIT, TYPE E	FT	\$ 12.00	\$ 2,400.00
29	611	400	12" CONDUIT, TYPE B, 706.08, AS PER D-32	FT	\$ 150.00	\$ 60,000.00
30	611	100	12" CONDUIT, TYPE B, DUCTILE IRON PIPE ANSI CLASS 52, PUSH-ON JOINTS AND FITTINGS, AS PER D-32	FT	\$ 150.00	\$ 15,000.00
31	611	200	12" CONDUIT, TYPE C, AS PER PLAN	FT	\$ 100.00	\$ 20,000.00
32	611	200	15" CONDUIT, TYPE B, 706.08, AS PER D-32	FT	\$ 150.00	\$ 30,000.00
33	611	30	CATCH BASIN, CITY OF CLEVELAND CB-1, AS PER D-34	EACH	\$ 3,000.00	\$ 90,000.00
34	611	4	CATCH BASIN, CITY OF CLEVELAND CB-2, AS PER D-34	EACH	\$ 4,400.00	\$ 17,600.00
35	611	34	CATCH BASIN ADJUSTED TO GRADE	EACH	\$ 600.00	\$ 20,400.00
36	611	42	VAULT/MANHOLE ADJUSTED TO GRADE, AS PER PLAN	EACH	\$ 800.00	\$ 33,600.00
37	611	25000	MISCELLANEOUS METAL (WPC), AS PER D-72	LB	\$ 1.50	\$ 37,500.00
<b>SUBTOTAL</b>						<b>\$ 434,100.00</b>
<b>PAVEMENT</b>						
38	251	2,700	PARTIAL DEPTH PAVEMENT REPAIR	SY	\$ 30.00	\$ 81,000.00
39	254	54,000	PAVEMENT PLANING, ASPHALT CONCRETE	SY	\$ 4.50	\$ 243,000.00
40	254	100	PATCHING PLANED SURFACE	SY	\$ 50.00	\$ 5,000.00
41	255	9,700	FULL DEPTH PAVEMENT SAWING	FT	\$ 1.25	\$ 12,125.00
42	304	1,400	AGGREGATE BASE	CY	\$ 45.00	\$ 63,000.00
43	305	310	9" CONCRETE BASE, AS PER D-23 AND D-24	CY	\$ 180.00	\$ 55,800.00
44	407	3,075	TACK COAT	GAL	\$ 3.00	\$ 9,225.00
45	407	1,640	TACK COAT FOR INTERMEDIATE COURSE	GAL	\$ 3.00	\$ 4,920.00
46	448	41,000	1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22, AS PER D-29	SY	\$ 8.00	\$ 328,000.00
47	448	255	0" MIN. ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22, AS PER D-29	CY	\$ 175.00	\$ 44,625.00
48	448	41,000	1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22, AS PER D-29	SY	\$ 7.00	\$ 287,000.00
49	452	400	8" NON-REINFORCED CONCRETE PAVEMENT, AS PER D-23 AND D-24	SY	\$ 65.00	\$ 26,000.00
50	452	25	NON-REINFORCED CONCRETE PAVEMENT, MISC.: CONCRETE PAVEMENT BEHIND DRIVES AND WALK	SY	\$ 75.00	\$ 1,875.00
51	SPECIAL	20	SURCHARGE FOR CLASS MS CONCRETE, AS PER D-25	CU YD	\$ 12.00	\$ 240.00
52	SPECIAL	20	SURCHARGE FOR CLASS FS CONCRETE, AS PER D-26	CU YD	\$ 12.00	\$ 240.00
53	609	11,000	CURB, TYPE 6	FT	\$ 15.00	\$ 165,000.00

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<b>OPTION 2</b>
<b>CYCLE TRACK IMPROVEMENTS (NORTHSIDE W 20 to W 44 &amp; SOUTHSIDE W 44 to W 65)</b>
<b>WITH STREETSCAPING AND LANDSCAPING INCLUDED</b>

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
					<b>SUBTOTAL</b>	<b>\$ 1,327,050.00</b>
			<b>WATER WORK</b>			
54	611	15	WATER MANHOLE ADJUSTED TO GRADE, AS PER D-39	EACH	\$ 700.00	\$ 10,500.00
55	638	71	VALVE BOX ADJUSTED TO GRADE, AS PER D-39	EACH	\$ 400.00	\$ 28,400.00
56	638	75	SERVICE BOX ADJUSTED TO GRADE, AS PER D-39	EACH	\$ 150.00	\$ 11,250.00
57	SPECIAL	10	EXTEND AND ADJUST HYDRANT TO GRADE, TYPE A	EACH	\$ 3,000.00	\$ 30,000.00
58	SPECIAL	7	EXTEND AND ADJUST HYDRANT TO GRADE, TYPE B	EACH	\$ 2,500.00	\$ 17,500.00
59	SPECIAL	2	HYDRANT ADJUSTED TO GRADE	EACH	\$ 1,500.00	\$ 3,000.00
60	611	15000	MISCELLANEOUS METAL (CWD), AS PER D-72	LB	\$ 2.00	\$ 30,000.00
					<b>SUBTOTAL</b>	<b>\$ 130,650.00</b>
			<b>LIGHTING</b>			
61	625	95	LIGHT POLE, DECORATIVE	EACH	\$ 2,200.00	\$ 209,000.00
62	625	95	LIGHT POLE FOUNDATION, AS PER PLAN	EACH	\$ 800.00	\$ 76,000.00
63	625	2,850	NO. 10 AWG POLE AND BRACKET CABLE	FT	\$ 1.00	\$ 2,850.00
64	625	9,500	CONDUIT, 3", 725.051	FT	\$ 20.00	\$ 190,000.00
65	625	95	LUMINAIRE, CONVENTIONAL, AS PER PLAN	EACH	\$ 320.00	\$ 30,400.00
66	625	9,500	TRENCH	FT	\$ 5.00	\$ 47,500.00
67	625	95	PULL BOX, MISC.:	EACH	\$ 585.00	\$ 55,575.00
68	625	95	GROUND ROD, AS PER PLAN	EACH	\$ 154.00	\$ 14,630.00
69	625	9,500	PLASTIC CAUTION TAPE, AS PER PLAN	FT	\$ 0.30	\$ 2,850.00
70	625	95	LIGHTING, MISC.: FOUNDATION TEST HOLE	EACH	\$ 500.00	\$ 47,500.00
					<b>SUBTOTAL</b>	<b>\$ 676,305.00</b>
			<b>TRAFFIC CONTROL</b>			
71	630	LUMP	SIGNING - REMOVAL AND REPLACEMENT ENTIRE CORRIDOR BOTH SIDES	LS	\$ 80,000.00	\$ 80,000.00
72	644	1.80	CENTER LINE	MILE	\$ 7,000.00	\$ 12,600.00
73	644	2,000	CHANNELIZING LINE, 8"	FT	\$ 2.00	\$ 4,000.00
74	644	8,450	CHANNELIZING LINE, 8", AS PER PLAN	FT	\$ 2.00	\$ 16,900.00
75	644	624	STOP LINE	FT	\$ 7.00	\$ 4,368.00
76	644	3,100	CROSSWALK LINE	FT	\$ 3.50	\$ 10,850.00
77	644	48	LANE ARROW	EACH	\$ 140.00	\$ 6,720.00

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REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
78	644	95	BIKE LANE SYMBOL MARKING	EACH	\$ 120.00	\$ 11,400.00
					<b>SUBTOTAL</b>	<b>\$ 146,838.00</b>
			<b>TRAFFIC SIGNALS</b>			
79	614	LUMP	MAINTAINING TRAFFIC, MISC.: MAINTENANCE OF TRAFFIC SIGNAL INSTALLATIONS, AS PER D-49	LS	\$ 10,000.00	\$ 10,000.00
80	630	10	SIGNING, MISC.: SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON SIGN ASSEMBLY	EACH	\$ 8,000.00	\$ 80,000.00
81	632	12	SIGNALIZATION UPGRADES	EACH	\$ 30,000.00	\$ 360,000.00
82	633	LUMP	SYSTEM ANALYSIS	LS	\$ 25,000.00	\$ 25,000.00
					<b>SUBTOTAL</b>	<b>\$ 475,000.00</b>
			<b>LANDSCAPING/STREETSCAPING</b>			
83	661	168	STREET TREES (ASSUME 1 TREE EVERY 50')	EACH	\$ 465.00	\$ 78,120.00
84	661	711	PLANTING MISC.: PLANTING SOIL (ASSUME 3.7 CY PER TREE)	CY	\$ 50.00	\$ 35,550.00
85	690	3,266	STRUCTURAL SOIL (ASSUME 19.44 CY PER TREE)	CY	\$ 55.00	\$ 179,630.00
86	690	4,368	SPECIAL MISC.: ROLLED CURB AROUND TREE OPENING (ASSUME 5' X 8' = 26 LF PER TREE)	LF	\$ 40.00	\$ 174,720.00
87	690	10	SPECIAL MISC.: TRASH RECEPTACLE (ASSUME 1 EVERY 2 BLOCKS)	EACH	\$ 1,750.00	\$ 17,500.00
88	690	16	SPECIAL MISC.: BICYCLE RACKS (ASSUME ONE EVERY 300 LINEAR FEET)	EACH	\$ 500.00	\$ 8,000.00
89	690	16	SPECIAL MISC.: METAL BENCHES 6' (ASSUME ONE EVERY 300 LINEAR FEET)	EACH	\$ 2,000.00	\$ 32,000.00
90	690	33,675	SPECIAL MISC.: BUFFER STRIP BRICK PAVERS ADDED TO CONCRETE BASE (CONC. BASE COVERED IN REF. NO. 14)	SF	\$ 12.00	\$ 404,100.00
91	690	80,950	SPECIAL MISC.: COLOR FOR CONCRETE CYCLE TRACK	SF	\$ 0.75	\$ 60,712.50
92	690	11,290	SPECIAL MISC.: STAMPED/COLORED CONCRETE CROSSWALKS	SF	\$ 32.00	\$ 361,280.00
93	690	20	SPECIAL MISC.: PARKING PAY STATIONS	EACH	\$ 12,000.00	\$ 240,000.00
			<b>TRANSIT WAITING AREAS (8)</b>			
94	661	1,056	SHRUBS (3' O.C.) (ASSUMES SOMEONE WILL BE ABLE TO MAINTAIN THE PLANTINGS.)	EACH	\$ 45.00	\$ 47,520.00
95	661	352	PLANTING MISC.: 12" PLANTING SOIL (FOR SHRUB BED ONLY, NOT BIORETENTION)	CY	\$ 50.00	\$ 17,600.00
96	690	2,016	BRICK PAVERS ADDED TO CONCRETE BASE (ASSUME 252SF PER TWE. TRASH RECEPTICLES INCLUDED ABOVE)	SF	\$ 12.00	\$ 24,192.00
			<b>PUBLIC ART</b>			
97	690	1	SPECIAL MISC.: PUBLIC ART (1.5% OF STREETSCAPE BUDGET)	LUMP	\$ 25,213.87	\$ 25,213.87
					<b>SUBTOTAL</b>	<b>\$ 1,706,138.37</b>
			<b>STRUCTURES</b>			
98	511	500	BARRIER IMPROVEMNTS TO EXISTING BRIDGES	FT	\$ 800.00	\$ 400,000.00

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REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
					<b>SUBTOTAL</b>	<b>\$ 400,000.00</b>
			<b>MAINTENANCE OF TRAFFIC</b>			
99	410	200	TRAFFIC COMPACTED SURFACE, TYPE A OR B, AS PER PLAN	CY	\$ 60.00	\$ 12,000.00
100	608	5,000	TEMPORARY ASPHALT CONCRETE WALK, AS PER PLAN	SF	\$ 2.00	\$ 10,000.00
101	614	180	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	\$ 30.00	\$ 5,400.00
102	614	150	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	HOURL	\$ 60.00	\$ 9,000.00
103	614	75	LAW ENFORCEMENT OFFICER WITHOUT PATROL CAR FOR ASSISTANCE	HOURL	\$ 60.00	\$ 4,500.00
104	614	100	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	CY	\$ 150.00	\$ 15,000.00
105	614	480	WORK ZONE STOP LINE, CLASS I, 740.06, TYPE I	FT	\$ 6.00	\$ 2,880.00
106	614	2,880	WORK ZONE CROSSWALK LINE, CLASS I, 740.06, TYPE I	FT	\$ 5.00	\$ 14,400.00
107	616	50	WATER	MGAL	\$ 15.00	\$ 750.00
108	616	10.00	CALCIUM CHLORIDE	TON	\$ 250.00	\$ 2,500.00
					<b>SUBTOTAL</b>	<b>\$ 76,430.00</b>
			<b>TESTING</b>			
109	SPECIAL	30	ASPHALT EXTRACTION TEST, AS PER D-73	EACH	\$ 50.00	\$ 1,500.00
110	SPECIAL	30	THICKNESS OF COMPACTED ASPHALT TEST, AS PER D-73	EACH	\$ 50.00	\$ 1,500.00
111	SPECIAL	30	CONCRETE CYLINDER TEST (4 SPECIMENS PER SET), AS PER D-73	SETS	\$ 50.00	\$ 1,500.00
112	SPECIAL	30	SUBSEQUENT SLUMP AND TEMPERATURE TEST, AS PER D-73	EACH	\$ 10.00	\$ 300.00
113	SPECIAL	30	SUBSEQUENT AIR CONTENT AND TEMPERATURE TEST, AS PER D-73	EACH	\$ 10.00	\$ 300.00
114	SPECIAL	2	FLEXURAL STRENGTH OF CONCRETE (BEAM) TEST (ASTM C-78), AS PER D-73	EACH	\$ 100.00	\$ 200.00
115	SPECIAL	200	TECHNICIAN WITH NUCLEAR DENSITY METER (SUBGRADE COMPACTION, SUBBASE, ASPHALT), AS PER D-73	HOURL	\$ 50.00	\$ 10,000.00
116	SPECIAL	6	PROCTOR TEST, AS PER D-73	EACH	\$ 100.00	\$ 600.00
					<b>SUBTOTAL</b>	<b>\$ 15,900.00</b>
			<b>MISCELLANEOUS</b>			
117	614	LUMP	MAINTAINING TRAFFIC, AS PER PLAN	LS	\$ 100,000.00	\$ 100,000.00
118	619	12	FIELD OFFICE, TYPE B	MNTH	\$ 3,000.00	\$ 36,000.00
119	619	LUMP	COMPUTER EQUIPMENT FOR TYPE B FIELD OFFICE, AS PER D-46, FOR CITY OWNERSHIP	LS	\$ 2,000.00	\$ 2,000.00
120	619	12	ADDITIONAL SMARTPHONE FOR CITY INSPECTOR, AS PER D-45	MNTH	\$ 125.00	\$ 1,500.00
121	619	LUMP	DIGITAL CAMERA FOR CITY OWNERSHIP	LS	\$ 500.00	\$ 500.00
122	623	LUMP	CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN	LS	\$ 10,000.00	\$ 10,000.00

**Project: LORAIN AVENUE**

Prepared for: Ohio City Incorporated  
 2525 Market Avenue, Suite A  
 Cleveland, Ohio 44113

Prepared By: Jim Shea, PE, PTOE  
 Michael Baker  
 1228 Euclid Avenue, Suite 1050  
 Cleveland, Ohio 44115

<b>OPTION 2</b>
<b>CYCLE TRACK IMPROVEMENTS (NORTHSIDE W 20 to W 44 &amp; SOUTHSIDE W 44 to W 65)</b>
<b>WITH STREETSCAPING AND LANDSCAPING INCLUDED</b>

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
123	624	LUMP	MOBILIZATION	LS	\$ 200,000.00	\$ 200,000.00
124	832	LUMP	STORM WATER POLLUTION PREVENTION PLAN	LS	\$ 5,000.00	\$ 5,000.00
125	832	LUMP	EROSION CONTROL	LS	\$ 15,000.00	\$ 15,000.00
126	SPECIAL	LUMP	AS-BUILT RECORD DRAWINGS	LS	\$ 5,000.00	\$ 5,000.00
127	SPECIAL	LUMP	PRE-CONSTRUCTION VIDEOGRAPHY, AS PER PLAN	LS	\$ 2,500.00	\$ 2,500.00
128	SPECIAL	LUMP	PRE-CONSTRUCTION VIDEOGRAPHY, AS PER D-36	LS	\$ 2,500.00	\$ 2,500.00
129	SPECIAL	2	PROJECT SIGNS FURNISHED AND PLACED	EACH	\$ 750.00	\$ 1,500.00
130	SPECIAL	LUMP	ENGINEERING & CONSTRUCTION FORCE ACCOUNT (FA-1A)	LS	\$ 75,000.00	\$ 75,000.00
131	SPECIAL	LUMP	CLEVELAND WATER DEPARTMENT FORCE ACCOUNT	LS	\$ 25,000.00	\$ 25,000.00
132	SPECIAL	LUMP	CLEVELAND WATER POLLUTION CONTROL FORCE ACCOUNT	LS	\$ 50,000.00	\$ 50,000.00
					<b>SUBTOTAL</b>	<b>\$ 531,500.00</b>
<b>Estimated Project Subtotal</b>						<b>\$7,421,489</b>
<b>Contingency (30%)</b>						<b>\$2,226,447</b>
<b>Inflation 2018 (10.6%)</b>						<b>\$1,022,681</b>
<b>Total Probable Construction Cost</b>						<b>\$10,670,618</b>
<b>Estimated Engineering Design Fees (8% of Construction)</b>						<b>\$853,649</b>

Note: The costs shown in this estimate represent an estimate of probable construction costs prepared in good faith and with reasonable care. Michael Baker has no control over the costs of construction labor, materials, or equipment, nor over competitive bidding or negotiating methods and does not make any commitment or assume any duty to assure that bids or negotiated prices will not vary from this estimate.

Estimate does not include: R/W Land Cost, Utility Relocation Cost or Construction Engineering and Inspection Costs

**Project: LORAIN AVENUE**

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 Cleveland, Ohio 44113

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 Cleveland, Ohio 44115

OPTION 3
CYCLE TRACK IMPROVEMENTS NORTHSIDE & SOUTHSIDEW 20 TO W 65
NO STREETSCAPING OR LANDSCAPING INCLUDED

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
<b>ROADWAY</b>						
1	201	LUMP	CLEARING AND GRUBBING	LS	\$ 30,000.00	\$ 30,000.00
2	202	12,100	PAVEMENT REMOVED	SY	\$ 9.00	\$ 108,900.00
3	202	800	PAVEMENT REMOVED FOR DRIVES	SY	\$ 10.00	\$ 8,000.00
4	202	170,000	WALK REMOVED	SF	\$ 1.25	\$ 212,500.00
5	202	19,600	CURB REMOVED	FT	\$ 6.00	\$ 117,600.00
6	202	600	PIPE REMOVED, 24" AND UNDER	FT	\$ 18.00	\$ 10,800.00
7	202	68	CATCH BASIN REMOVED	EACH	\$ 350.00	\$ 23,800.00
8	203	2000	EXCAVATION	CY	\$ 18.00	\$ 36,000.00
9	203	4700	EMBANKMENT, AS PER PLAN	CY	\$ 15.00	\$ 70,500.00
10	204	15,600	SUBGRADE COMPACTION	SY	\$ 1.00	\$ 15,600.00
11	204	16	PROOF ROLLING	HOUR	\$ 150.00	\$ 2,400.00
12	204	3,120	GEOTEXTILE FABRIC	SY	\$ 2.00	\$ 6,240.00
13	608	135,000	6" CONCRETE WALK - SIDEWALK	SF	\$ 6.00	\$ 810,000.00
14	608	115,000	6" CONCRETE WALK - CYCLE TRACK & BUFFER	SF	\$ 6.00	\$ 690,000.00
15	608	62	CURB RAMP LAYOUT COMPLETE IN PLACE WITH TILE, AS PER PLAN	CORNER	\$ 1,000.00	\$ 62,000.00
16	623	29	MONUMENT BOX ADJUSTED TO GRADE	EACH	\$ 450.00	\$ 13,050.00
17	SPECIAL	2,000	PIPE CLEANOUT	FT	\$ 15.00	\$ 30,000.00
18	SPECIAL	150	UNDERCUTTING SUBGRADE AND SUBBASE	CY	\$ 60.00	\$ 9,000.00
					<b>SUBTOTAL</b>	<b>\$ 2,256,390.00</b>
<b>EROSION CONTROL</b>						
19	659	2	SOIL ANALYSIS TEST	EACH	\$ 150.00	\$ 300.00
20	659	469	TOPSOIL	CY	\$ 35.00	\$ 16,415.00
21	659	4,224	SEEDING AND MULCHING	SY	\$ 1.25	\$ 5,280.00
22	659	0.59	COMMERCIAL FERTILIZER	TON	\$ 800.00	\$ 472.00
23	659	0.87	LIME	ACRE	\$ 400.00	\$ 348.00
24	659	23	WATER	MGAL	\$ 20.00	\$ 460.00
					<b>SUBTOTAL</b>	<b>\$ 23,275.00</b>

**Project: LORAIN AVENUE**

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OPTION 3
CYCLE TRACK IMPROVEMENTS NORTHSIDE & SOUTHSIDE W 20 TO W 65
NO STREETSCAPING OR LANDSCAPING INCLUDED

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
<b>DRAINAGE</b>						
25	605	1000	6" UNCLASSIFIED PIPE UNDERDRAINS WITH FABRIC WRAP	FT	\$ 11.00	\$ 11,000.00
26	605	19000	6" BASE PIPE UNDERDRAINS WITH FABRIC WRAP	FT	\$ 10.00	\$ 190,000.00
27	611	600	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	FT	\$ 15.00	\$ 9,000.00
28	611	400	6" CONDUIT, TYPE E	FT	\$ 12.00	\$ 4,800.00
29	611	800	12" CONDUIT, TYPE B, 706.08, AS PER D-32	FT	\$ 150.00	\$ 120,000.00
30	611	200	12" CONDUIT, TYPE B, DUCTILE IRON PIPE ANSI CLASS 52, PUSH-ON JOINTS AND FITTINGS, AS PER D-32	FT	\$ 150.00	\$ 30,000.00
31	611	300	12" CONDUIT, TYPE C, AS PER PLAN	FT	\$ 100.00	\$ 30,000.00
32	611	300	15" CONDUIT, TYPE B, 706.08, AS PER D-32	FT	\$ 150.00	\$ 45,000.00
33	611	60	CATCH BASIN, CITY OF CLEVELAND CB-1, AS PER D-34	EACH	\$ 3,000.00	\$ 180,000.00
34	611	8	CATCH BASIN, CITY OF CLEVELAND CB-2, AS PER D-34	EACH	\$ 4,400.00	\$ 35,200.00
35	611	42	VAULT/MANHOLE ADJUSTED TO GRADE, AS PER PLAN	EACH	\$ 800.00	\$ 33,600.00
36	611	35000	MISCELLANEOUS METAL (WPC), AS PER D-72	LB	\$ 1.50	\$ 52,500.00
<b>SUBTOTAL</b>						<b>\$ 741,100.00</b>
<b>PAVEMENT</b>						
37	251	2,700	PARTIAL DEPTH PAVEMENT REPAIR	SY	\$ 30.00	\$ 81,000.00
38	254	54,000	PAVEMENT PLANING, ASPHALT CONCRETE	SY	\$ 4.50	\$ 243,000.00
39	254	100	PATCHING PLANED SURFACE	SY	\$ 50.00	\$ 5,000.00
40	255	19,500	FULL DEPTH PAVEMENT SAWING	FT	\$ 1.25	\$ 24,375.00
41	304	1,700	AGGREGATE BASE	CY	\$ 45.00	\$ 76,500.00
42	305	585	9" CONCRETE BASE, AS PER D-23 AND D-24	CY	\$ 180.00	\$ 105,300.00
43	407	3,075	TACK COAT	GAL	\$ 3.00	\$ 9,225.00
44	407	1,640	TACK COAT FOR INTERMEDIATE COURSE	GAL	\$ 3.00	\$ 4,920.00
45	448	41,000	1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22, AS PER D-29	SY	\$ 8.00	\$ 328,000.00
46	448	255	0" MIN. ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22, AS PER D-29	CY	\$ 175.00	\$ 44,625.00
47	448	41,000	1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22, AS PER D-29	SY	\$ 7.00	\$ 287,000.00

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OPTION 3
CYCLE TRACK IMPROVEMENTS NORTHSIDE & SOUTHSIDE W 20 TO W 65
NO STREETSCAPING OR LANDSCAPING INCLUDED

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
48	452	800	8" NON-REINFORCED CONCRETE PAVEMENT, AS PER D-23 AND D-24	SY	\$ 65.00	\$ 52,000.00
49	452	50	NON-REINFORCED CONCRETE PAVEMENT, MISC.: CONCRETE PAVEMENT BEHIND DRIVES AND WALK	SY	\$ 75.00	\$ 3,750.00
50	SPECIAL	40	SURCHARGE FOR CLASS MS CONCRETE, AS PER D-25	CU YD	\$ 12.00	\$ 480.00
51	SPECIAL	40	SURCHARGE FOR CLASS FS CONCRETE, AS PER D-26	CU YD	\$ 12.00	\$ 480.00
52	609	20,800	CURB, TYPE 6	FT	\$ 15.00	\$ 312,000.00
<b>SUBTOTAL</b>						<b>\$ 1,577,655.00</b>
<b>WATER WORK</b>						
53	611	30	WATER MANHOLE ADJUSTED TO GRADE, AS PER D-39	EACH	\$ 700.00	\$ 21,000.00
54	638	71	VALVE BOX ADJUSTED TO GRADE, AS PER D-39	EACH	\$ 400.00	\$ 28,400.00
55	638	150	SERVICE BOX ADJUSTED TO GRADE, AS PER D-39	EACH	\$ 150.00	\$ 22,500.00
56	SPECIAL	10	EXTEND AND ADJUST HYDRANT TO GRADE, TYPE A	EACH	\$ 3,000.00	\$ 30,000.00
57	SPECIAL	7	EXTEND AND ADJUST HYDRANT TO GRADE, TYPE B	EACH	\$ 2,500.00	\$ 17,500.00
58	SPECIAL	14	HYDRANT ADJUSTED TO GRADE	EACH	\$ 1,500.00	\$ 21,000.00
59	611	18000	MISCELLANEOUS METAL (CWD), AS PER D-72	LB	\$ 2.00	\$ 36,000.00
<b>SUBTOTAL</b>						<b>\$ 176,400.00</b>
<b>LIGHTING</b>						
60	625	95	LIGHT POLE, DECORATIVE	EACH	\$ 2,200.00	\$ 209,000.00
61	625	95	LIGHT POLE FOUNDATION, AS PER PLAN	EACH	\$ 800.00	\$ 76,000.00
62	625	2,850	NO. 10 AWG POLE AND BRACKET CABLE	FT	\$ 1.00	\$ 2,850.00
63	625	9,500	CONDUIT, 3", 725.051	FT	\$ 20.00	\$ 190,000.00
64	625	95	LUMINAIRE, CONVENTIONAL, AS PER PLAN	EACH	\$ 320.00	\$ 30,400.00
65	625	9,500	TRENCH	FT	\$ 5.00	\$ 47,500.00
66	625	95	PULL BOX, MISC.:	EACH	\$ 585.00	\$ 55,575.00
67	625	95	GROUND ROD, AS PER PLAN	EACH	\$ 154.00	\$ 14,630.00
68	625	9,500	PLASTIC CAUTION TAPE, AS PER PLAN	FT	\$ 0.30	\$ 2,850.00
69	625	95	LIGHTING, MISC.: FOUNDATION TEST HOLE	EACH	\$ 500.00	\$ 47,500.00
<b>SUBTOTAL</b>						<b>\$ 676,305.00</b>

**Project: LORAIN AVENUE**

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 Cleveland, Ohio 44115

OPTION 3
CYCLE TRACK IMPROVEMENTS NORTHSIDE & SOUTHSIDEW 20 TO W 65
NO STREETSCAPING OR LANDSCAPING INCLUDED

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
<b>TRAFFIC CONTROL</b>						
70	630	LUMP	SIGNING - REMOVAL AND REPLACEMENT ENTIRE CORRIDOR BOTH SIDES	LS	\$ 80,000.00	\$ 80,000.00
71	644	1.80	CENTER LINE	MILE	\$ 7,000.00	\$ 12,600.00
72	644	2,000	CHANNELIZING LINE, 8"	FT	\$ 2.00	\$ 4,000.00
73	644	8,450	CHANNELIZING LINE, 8", AS PER PLAN	FT	\$ 2.00	\$ 16,900.00
74	644	624	STOP LINE	FT	\$ 7.00	\$ 4,368.00
75	644	3,100	CROSSWALK LINE	FT	\$ 3.50	\$ 10,850.00
76	644	48	LANE ARROW	EACH	\$ 140.00	\$ 6,720.00
77	644	95	BIKE LANE SYMBOL MARKING	EACH	\$ 120.00	\$ 11,400.00
<b>SUBTOTAL</b>						<b>\$ 146,838.00</b>
<b>TRAFFIC SIGNALS</b>						
78	614	LUMP	MAINTAINING TRAFFIC, MISC.: MAINTENANCE OF TRAFFIC SIGNAL INSTALLATIONS, AS PER D-49	LS	\$ 10,000.00	\$ 10,000.00
79	630	10	SIGNING, MISC.: SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON SIGN ASSEMBLY	EACH	\$ 8,000.00	\$ 80,000.00
80	632	12	SIGNALIZATION UPGRADES	EACH	\$ 30,000.00	\$ 360,000.00
81	633	LUMP	SYSTEM ANALYSIS	LS	\$ 25,000.00	\$ 25,000.00
<b>SUBTOTAL</b>						<b>\$ 475,000.00</b>
<b>STRUCTURES</b>						
82	511	500	BARRIER IMPROVEMNTS TO EXISTING BRIDGES	FT	\$ 800.00	\$ 400,000.00
<b>SUBTOTAL</b>						<b>\$ 400,000.00</b>
<b>MAINTENANCE OF TRAFFIC</b>						
83	410	250	TRAFFIC COMPACTED SURFACE, TYPE A OR B, AS PER PLAN	CY	\$ 60.00	\$ 15,000.00
84	608	10,000	TEMPORARY ASPHALT CONCRETE WALK, AS PER PLAN	SF	\$ 2.00	\$ 20,000.00
85	614	180	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	\$ 30.00	\$ 5,400.00
86	614	175	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	HOUR	\$ 60.00	\$ 10,500.00
87	614	100	LAW ENFORCEMENT OFFICER WITHOUT PATROL CAR FOR ASSISTANCE	HOUR	\$ 60.00	\$ 6,000.00

**Project: LORAIN AVENUE**

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OPTION 3
CYCLE TRACK IMPROVEMENTS NORTHSIDE & SOUTHSIDE W 20 TO W 65
NO STREETSCAPING OR LANDSCAPING INCLUDED

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
88	614	125	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	CY	\$ 150.00	\$ 18,750.00
89	614	480	WORK ZONE STOP LINE, CLASS I, 740.06, TYPE I	FT	\$ 6.00	\$ 2,880.00
90	614	2,880	WORK ZONE CROSSWALK LINE, CLASS I, 740.06, TYPE I	FT	\$ 5.00	\$ 14,400.00
91	616	50	WATER	MGAL	\$ 15.00	\$ 750.00
92	616	10.00	CALCIUM CHLORIDE	TON	\$ 250.00	\$ 2,500.00
					<b>SUBTOTAL</b>	<b>\$ 96,180.00</b>
			<b>TESTING</b>			
93	SPECIAL	30	ASPHALT EXTRACTION TEST, AS PER D-73	EACH	\$ 50.00	\$ 1,500.00
94	SPECIAL	30	THICKNESS OF COMPACTED ASPHALT TEST, AS PER D-73	EACH	\$ 50.00	\$ 1,500.00
95	SPECIAL	30	CONCRETE CYLINDER TEST (4 SPECIMENS PER SET), AS PER D-73	SETS	\$ 50.00	\$ 1,500.00
96	SPECIAL	30	SUBSEQUENT SLUMP AND TEMPERATURE TEST, AS PER D-73	EACH	\$ 10.00	\$ 300.00
97	SPECIAL	30	SUBSEQUENT AIR CONTENT AND TEMPERATURE TEST, AS PER D-73	EACH	\$ 10.00	\$ 300.00
98	SPECIAL	2	FLEXURAL STRENGTH OF CONCRETE (BEAM) TEST (ASTM C-78), AS PER D-73	EACH	\$ 100.00	\$ 200.00
99	SPECIAL	200	TECHNICIAN WITH NUCLEAR DENSITY METER (SUBGRADE COMPACTION, SUBBASE, ASPHALT), AS PER D-73	HOUR	\$ 50.00	\$ 10,000.00
100	SPECIAL	6	PROCTOR TEST, AS PER D-73	EACH	\$ 100.00	\$ 600.00
					<b>SUBTOTAL</b>	<b>\$ 15,900.00</b>
			<b>MISCELLANEOUS</b>			
101	614	LUMP	MAINTAINING TRAFFIC, AS PER PLAN	LS	\$ 100,000.00	\$ 100,000.00
102	619	12	FIELD OFFICE, TYPE B	MNTH	\$ 3,000.00	\$ 36,000.00
103	619	LUMP	COMPUTER EQUIPMENT FOR TYPE B FIELD OFFICE, AS PER D-46, FOR CITY OWNERSHIP	LS	\$ 2,000.00	\$ 2,000.00
104	619	12	ADDITIONAL SMARTPHONE FOR CITY INSPECTOR, AS PER D-45	MNTH	\$ 125.00	\$ 1,500.00
105	619	LUMP	DIGITAL CAMERA FOR CITY OWNERSHIP	LS	\$ 500.00	\$ 500.00
106	623	LUMP	CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN	LS	\$ 10,000.00	\$ 10,000.00
107	624	LUMP	MOBILIZATION	LS	\$ 200,000.00	\$ 200,000.00
108	832	LUMP	STORM WATER POLLUTION PREVENTION PLAN	LS	\$ 5,000.00	\$ 5,000.00
109	832	LUMP	EROSION CONTROL	LS	\$ 15,000.00	\$ 15,000.00
110	SPECIAL	LUMP	AS-BUILT RECORD DRAWINGS	LS	\$ 5,000.00	\$ 5,000.00

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OPTION 3
CYCLE TRACK IMPROVEMENTS NORTHSIDE & SOUTHSIDE W 20 TO W 65
NO STREETSCAPING OR LANDSCAPING INCLUDED

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
111	SPECIAL	LUMP	PRE-CONSTRUCTION VIDEOGRAPHY, AS PER PLAN	LS	\$ 2,500.00	\$ 2,500.00
112	SPECIAL	LUMP	PRE-CONSTRUCTION VIDEOGRAPHY, AS PER D-36	LS	\$ 2,500.00	\$ 2,500.00
113	SPECIAL	2	PROJECT SIGNS FURNISHED AND PLACED	EACH	\$ 750.00	\$ 1,500.00
114	SPECIAL	LUMP	ENGINEERING & CONSTRUCTION FORCE ACCOUNT (FA-1A)	LS	\$ 75,000.00	\$ 75,000.00
115	SPECIAL	LUMP	CLEVELAND WATER DEPARTMENT FORCE ACCOUNT	LS	\$ 25,000.00	\$ 25,000.00
116	SPECIAL	LUMP	CLEVELAND WATER POLLUTION CONTROL FORCE ACCOUNT	LS	\$ 50,000.00	\$ 50,000.00
					<b>SUBTOTAL</b>	<b>\$ 531,500.00</b>
<b>Estimated Project Subtotal</b>						<b>\$7,116,543</b>
<b>Contingency (30%)</b>						<b>\$2,134,963</b>
<b>Inflation 2018 (10.6%)</b>						<b>\$980,660</b>
<b>Total Probable Construction Cost</b>						<b>\$10,232,166</b>
<b>Estimated Engineering Design Fees (8% of Construction)</b>						<b>\$818,573</b>

Note: The costs shown in this estimate represent an estimate of probable construction costs prepared in good faith and with reasonable care. Michael Baker has no control over the costs of construction labor, materials, or equipment, nor over competitive bidding or negotiating methods and does not make any commitment or assume any duty to assure that bids or negotiated prices will not vary from this estimate.

Estimate does not include: R/W Land Cost, Utility Relocation Cost or Construction Engineering and Inspection Costs

**Project: LORAIN AVENUE**

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<b>OPTION 4</b>
<b>CYCLE TRACK IMPROVEMENTS NORTHSIDE &amp; SOUTHSIDEW 20 TO W 65</b>
<b>WITH STREETSCAPING AND LANDSCAPING INCLUDED</b>

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
<b>ROADWAY</b>						
1	201	LUMP	CLEARING AND GRUBBING	LS	\$ 30,000.00	\$ 30,000.00
2	202	12,100	PAVEMENT REMOVED	SY	\$ 9.00	\$ 108,900.00
3	202	800	PAVEMENT REMOVED FOR DRIVES	SY	\$ 10.00	\$ 8,000.00
4	202	170,000	WALK REMOVED	SF	\$ 1.25	\$ 212,500.00
5	202	19,600	CURB REMOVED	FT	\$ 6.00	\$ 117,600.00
6	202	600	PIPE REMOVED, 24" AND UNDER	FT	\$ 18.00	\$ 10,800.00
7	202	68	CATCH BASIN REMOVED	EACH	\$ 350.00	\$ 23,800.00
8	203	2000	EXCAVATION	CY	\$ 18.00	\$ 36,000.00
9	203	4700	EMBANKMENT, AS PER PLAN	CY	\$ 15.00	\$ 70,500.00
10	204	15,600	SUBGRADE COMPACTION	SY	\$ 1.00	\$ 15,600.00
11	204	16	PROOF ROLLING	hour	\$ 150.00	\$ 2,400.00
12	204	3,120	GEOTEXTILE FABRIC	SY	\$ 2.00	\$ 6,240.00
13	608	135,000	6" CONCRETE WALK - SIDEWALK	SF	\$ 6.00	\$ 810,000.00
14	608	115,000	6" CONCRETE WALK - CYCLE TRACK & BUFFER	SF	\$ 6.00	\$ 690,000.00
15	608	62	CURB RAMP LAYOUT COMPLETE IN PLACE WITH TILE, AS PER PLAN	CORNER	\$ 1,000.00	\$ 62,000.00
16	623	29	MONUMENT BOX ADJUSTED TO GRADE	EACH	\$ 450.00	\$ 13,050.00
17	SPECIAL	2,000	PIPE CLEANOUT	FT	\$ 15.00	\$ 30,000.00
18	SPECIAL	150	UNDERCUTTING SUBGRADE AND SUBBASE	CY	\$ 60.00	\$ 9,000.00
<b>SUBTOTAL</b>						<b>\$ 2,256,390.00</b>
<b>EROSION CONTROL</b>						
19	659	2	SOIL ANALYSIS TEST	EACH	\$ 150.00	\$ 300.00
20	659	469	TOPSOIL	CY	\$ 35.00	\$ 16,415.00
21	659	4,224	SEEDING AND MULCHING	SY	\$ 1.25	\$ 5,280.00
22	659	0.59	COMMERCIAL FERTILIZER	TON	\$ 800.00	\$ 472.00
23	659	0.87	LIME	ACRE	\$ 400.00	\$ 348.00
24	659	23	WATER	MGAL	\$ 20.00	\$ 460.00
<b>SUBTOTAL</b>						<b>\$ 23,275.00</b>
<b>DRAINAGE</b>						
25	605	1000	6" UNCLASSIFIED PIPE UNDERDRAINS WITH FABRIC WRAP	FT	\$ 11.00	\$ 11,000.00
26	605	19000	6" BASE PIPE UNDERDRAINS WITH FABRIC WRAP	FT	\$ 10.00	\$ 190,000.00

**Project: LORAIN AVENUE**

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 Cleveland, Ohio 44113

Prepared By: Jim Shea, PE, PTOE  
 Michael Baker  
 1228 Euclid Avenue, Suite 1050  
 Cleveland, Ohio 44115

<b>OPTION 4</b>
<b>CYCLE TRACK IMPROVEMENTS NORTHSIDE &amp; SOUTHSIDEW 20 TO W 65</b>
<b>WITH STREETSCAPING AND LANDSCAPING INCLUDED</b>

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
27	611	600	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	FT	\$ 15.00	\$ 9,000.00
28	611	400	6" CONDUIT, TYPE E	FT	\$ 12.00	\$ 4,800.00
29	611	800	12" CONDUIT, TYPE B, 706.08, AS PER D-32	FT	\$ 150.00	\$ 120,000.00
30	611	200	12" CONDUIT, TYPE B, DUCTILE IRON PIPE ANSI CLASS 52, PUSH-ON JOINTS AND FITTINGS, AS PER D-32	FT	\$ 150.00	\$ 30,000.00
31	611	300	12" CONDUIT, TYPE C, AS PER PLAN	FT	\$ 100.00	\$ 30,000.00
32	611	300	15" CONDUIT, TYPE B, 706.08, AS PER D-32	FT	\$ 150.00	\$ 45,000.00
33	611	60	CATCH BASIN, CITY OF CLEVELAND CB-1, AS PER D-34	EACH	\$ 3,000.00	\$ 180,000.00
34	611	8	CATCH BASIN, CITY OF CLEVELAND CB-2, AS PER D-34	EACH	\$ 4,400.00	\$ 35,200.00
35	611	42	VAULT/MANHOLE ADJUSTED TO GRADE, AS PER PLAN	EACH	\$ 800.00	\$ 33,600.00
36	611	35000	MISCELLANEOUS METAL (WPC), AS PER D-72	LB	\$ 1.50	\$ 52,500.00
					<b>SUBTOTAL</b>	<b>\$ 741,100.00</b>
			<b>PAVEMENT</b>			
37	251	2,700	PARTIAL DEPTH PAVEMENT REPAIR	SY	\$ 30.00	\$ 81,000.00
38	254	54,000	PAVEMENT PLANING, ASPHALT CONCRETE	SY	\$ 4.50	\$ 243,000.00
39	254	100	PATCHING PLANED SURFACE	SY	\$ 50.00	\$ 5,000.00
40	255	19,500	FULL DEPTH PAVEMENT SAWING	FT	\$ 1.25	\$ 24,375.00
41	304	1,700	AGGREGATE BASE	CY	\$ 45.00	\$ 76,500.00
42	305	585	9" CONCRETE BASE, AS PER D-23 AND D-24	CY	\$ 180.00	\$ 105,300.00
43	407	3,075	TACK COAT	GAL	\$ 3.00	\$ 9,225.00
44	407	1,640	TACK COAT FOR INTERMEDIATE COURSE	GAL	\$ 3.00	\$ 4,920.00
45	448	41,000	1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22, AS PER D-29	SY	\$ 8.00	\$ 328,000.00
46	448	255	0" MIN. ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22, AS PER D-29	CY	\$ 175.00	\$ 44,625.00
47	448	41,000	1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22, AS PER D-29	SY	\$ 7.00	\$ 287,000.00
48	452	800	8" NON-REINFORCED CONCRETE PAVEMENT, AS PER D-23 AND D-24	SY	\$ 65.00	\$ 52,000.00
49	452	50	NON-REINFORCED CONCRETE PAVEMENT, MISC.: CONCRETE PAVEMENT BEHIND DRIVES AND WALK	SY	\$ 75.00	\$ 3,750.00
50	SPECIAL	40	SURCHARGE FOR CLASS MS CONCRETE, AS PER D-25	CU YD	\$ 12.00	\$ 480.00
51	SPECIAL	40	SURCHARGE FOR CLASS FS CONCRETE, AS PER D-26	CU YD	\$ 12.00	\$ 480.00
52	609	20,800	CURB, TYPE 6	FT	\$ 15.00	\$ 312,000.00

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<b>OPTION 4</b>
<b>CYCLE TRACK IMPROVEMENTS NORTHSIDE &amp; SOUTHSIDE W 20 TO W 65</b>
<b>WITH STREETSCAPING AND LANDSCAPING INCLUDED</b>

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
					<b>SUBTOTAL</b>	<b>\$ 1,577,655.00</b>
			<b>WATER WORK</b>			
53	611	30	WATER MANHOLE ADJUSTED TO GRADE, AS PER D-39	EACH	\$ 700.00	\$ 21,000.00
54	638	71	VALVE BOX ADJUSTED TO GRADE, AS PER D-39	EACH	\$ 400.00	\$ 28,400.00
55	638	150	SERVICE BOX ADJUSTED TO GRADE, AS PER D-39	EACH	\$ 150.00	\$ 22,500.00
56	SPECIAL	10	EXTEND AND ADJUST HYDRANT TO GRADE, TYPE A	EACH	\$ 3,000.00	\$ 30,000.00
57	SPECIAL	7	EXTEND AND ADJUST HYDRANT TO GRADE, TYPE B	EACH	\$ 2,500.00	\$ 17,500.00
58	SPECIAL	14	HYDRANT ADJUSTED TO GRADE	EACH	\$ 1,500.00	\$ 21,000.00
59	611	18000	MISCELLANEOUS METAL (CWD), AS PER D-72	LB	\$ 2.00	\$ 36,000.00
					<b>SUBTOTAL</b>	<b>\$ 176,400.00</b>
			<b>LIGHTING</b>			
60	625	95	LIGHT POLE, DECORATIVE	EACH	\$ 2,200.00	\$ 209,000.00
61	625	95	LIGHT POLE FOUNDATION, AS PER PLAN	EACH	\$ 800.00	\$ 76,000.00
62	625	2,850	NO. 10 AWG POLE AND BRACKET CABLE	FT	\$ 1.00	\$ 2,850.00
63	625	9,500	CONDUIT, 3", 725.051	FT	\$ 20.00	\$ 190,000.00
64	625	95	LUMINAIRE, CONVENTIONAL, AS PER PLAN	EACH	\$ 320.00	\$ 30,400.00
65	625	9,500	TRENCH	FT	\$ 5.00	\$ 47,500.00
66	625	95	PULL BOX, MISC.:	EACH	\$ 585.00	\$ 55,575.00
67	625	95	GROUND ROD, AS PER PLAN	EACH	\$ 154.00	\$ 14,630.00
68	625	9,500	PLASTIC CAUTION TAPE, AS PER PLAN	FT	\$ 0.30	\$ 2,850.00
69	625	95	LIGHTING, MISC.: FOUNDATION TEST HOLE	EACH	\$ 500.00	\$ 47,500.00
					<b>SUBTOTAL</b>	<b>\$ 676,305.00</b>
			<b>TRAFFIC CONTROL</b>			
70	630	LUMP	SIGNING - REMOVAL AND REPLACEMENT ENTIRE CORRIDOR BOTH SIDES	LS	\$ 80,000.00	\$ 80,000.00
71	644	1.80	CENTER LINE	MILE	\$ 7,000.00	\$ 12,600.00
72	644	2,000	CHANNELIZING LINE, 8"	FT	\$ 2.00	\$ 4,000.00
73	644	8,450	CHANNELIZING LINE, 8", AS PER PLAN	FT	\$ 2.00	\$ 16,900.00
74	644	624	STOP LINE	FT	\$ 7.00	\$ 4,368.00
75	644	3,100	CROSSWALK LINE	FT	\$ 3.50	\$ 10,850.00
76	644	48	LANE ARROW	EACH	\$ 140.00	\$ 6,720.00
77	644	95	BIKE LANE SYMBOL MARKING	EACH	\$ 120.00	\$ 11,400.00

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<b>OPTION 4</b>
<b>CYCLE TRACK IMPROVEMENTS NORTHSIDE &amp; SOUTHSIDEW 20 TO W 65</b>
<b>WITH STREETSCAPING AND LANDSCAPING INCLUDED</b>

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
					<b>SUBTOTAL</b>	<b>\$ 146,838.00</b>
			<b>TRAFFIC SIGNALS</b>			
78	614	LUMP	MAINTAINING TRAFFIC, MISC.: MAINTENANCE OF TRAFFIC SIGNAL INSTALLATIONS, AS PER D-49	LS	\$ 10,000.00	\$ 10,000.00
79	630	10	SIGNING, MISC.: SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON SIGN ASSEMBLY	EACH	\$ 8,000.00	\$ 80,000.00
80	632	12	SIGNALIZATION UPGRADES	EACH	\$ 30,000.00	\$ 360,000.00
81	633	LUMP	SYSTEM ANALYSIS	LS	\$ 25,000.00	\$ 25,000.00
					<b>SUBTOTAL</b>	<b>\$ 475,000.00</b>
			<b>LANDSCAPING/STREETSCAPING</b>			
82	661	336	STREET TREES (ASSUME 1 TREE EVERY 50')	EACH	\$ 465.00	\$ 156,240.00
83	661	1,422	PLANTING MISC.: PLANTING SOIL (ASSUME 3.7 CY PER TREE)	CY	\$ 50.00	\$ 71,100.00
84	690	6,532	STRUCTURAL SOIL (ASSUME 19.44 CY PER TREE)	CY	\$ 55.00	\$ 359,260.00
85	690	8,736	SPECIAL MISC.: ROLLED CURB AROUND TREE OPENING (ASSUME 5' X 8' = 26 LF PER TREE)	LF	\$ 40.00	\$ 349,440.00
86	690	20	SPECIAL MISC.: TRASH RECEPTACLE (ASSUME 1 EVERY 2 BLOCKS)	EACH	\$ 1,750.00	\$ 35,000.00
87	690	32	SPECIAL MISC.: BICYCLE RACKS (ASSUME ONE EVERY 300 LINEAR FEET)	EACH	\$ 500.00	\$ 16,000.00
88	690	32	SPECIAL MISC.: METAL BENCHES 6' (ASSUME ONE EVERY 300 LINEAR FEET)	EACH	\$ 2,000.00	\$ 64,000.00
89	690	59,895	SPECIAL MISC.: BUFFER STRIP BRICK PAVERS ADDED TO CONCRETE BASE (CONC. BASE COVERED IN REF. NO. 14)	SF	\$ 12.00	\$ 718,740.00
90	690	80,950	SPECIAL MISC.: COLOR FOR CONCRETE CYCLE TRACK	SF	\$ 0.75	\$ 60,712.50
91	690	11,290	SPECIAL MISC.: STAMPED/COLORED CONCRETE CROSSWALKS	SF	\$ 32.00	\$ 361,280.00
92	690	16,400	SPECIAL MISC.: STAMPED/COLORED CONCRETE FOR ENHANCED INTERSECTIONS	SF	\$ 32.00	\$ 524,800.00
93	690	6,400	SPECIAL MISC.: BRICK PAVERS AT PED. AREAS FOR ENHANCED INTERSECTIONS (CONCRETE BASE COVERED IN REF. NO. 14)	SF	\$ 12.00	\$ 76,800.00
94	690	40	SPECIAL MISC.: PARKING PAY STATIONS	EACH	\$ 12,000.00	\$ 480,000.00
			<b>TRANSIT WAITING AREAS (8)</b>			
95	661	2,112	SHRUBS (3' O.C.) (ASSUMES SOMEONE WILL BE ABLE TO MAINTAIN THE PLANTINGS.)	EACH	\$ 45.00	\$ 95,040.00
96	661	704	PLANTING MISC.: 12" PLANTING SOIL (FOR SHRUB BED ONLY, NOT BIORETENTION)	CY	\$ 50.00	\$ 35,200.00
97	690	4,032	BRICK PAVERS ADDED TO CONCRETE BASE (ASSUME 252SF PER TWE. TRASH RECEPTICLES INCLUDED ABOVE)	SF	\$ 12.00	\$ 48,384.00
			<b>PUBLIC ART</b>			
98	690	1	SPECIAL MISC.: PUBLIC ART (1.5% OF STREETSCAPE BUDGET)	LUMP	\$ 51,779.95	\$ 51,779.95
					<b>SUBTOTAL</b>	<b>\$ 3,503,776.45</b>
			<b>STRUCTURES</b>			

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<b>OPTION 4</b>
<b>CYCLE TRACK IMPROVEMENTS NORTHSIDE &amp; SOUTHSIDEW 20 TO W 65</b>
<b>WITH STREETSCAPING AND LANDSCAPING INCLUDED</b>

REF. NO.	ITEM	ESTIMATED QUANTITY	DESCRIPTION	UNIT	EST. UNIT PRICE (2014)	TOTAL COST EST.
99	511	500	BARRIER IMPROVEMNTS TO EXISTING BRIDGES	FT	\$ 800.00	\$ 400,000.00
					<b>SUBTOTAL</b>	<b>\$ 400,000.00</b>
			<b>MAINTENANCE OF TRAFFIC</b>			
100	410	250	TRAFFIC COMPACTED SURFACE, TYPE A OR B, AS PER PLAN	CY	\$ 60.00	\$ 15,000.00
101	608	10,000	TEMPORARY ASPHALT CONCRETE WALK, AS PER PLAN	SF	\$ 2.00	\$ 20,000.00
102	614	180	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	\$ 30.00	\$ 5,400.00
103	614	175	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	HOURL	\$ 60.00	\$ 10,500.00
104	614	100	LAW ENFORCEMENT OFFICER WITHOUT PATROL CAR FOR ASSISTANCE	HOURL	\$ 60.00	\$ 6,000.00
105	614	125	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	CY	\$ 150.00	\$ 18,750.00
106	614	480	WORK ZONE STOP LINE, CLASS I, 740.06, TYPE I	FT	\$ 6.00	\$ 2,880.00
107	614	2,880	WORK ZONE CROSSWALK LINE, CLASS I, 740.06, TYPE I	FT	\$ 5.00	\$ 14,400.00
108	616	50	WATER	MGAL	\$ 15.00	\$ 750.00
109	616	10.00	CALCIUM CHLORIDE	TON	\$ 250.00	\$ 2,500.00
					<b>SUBTOTAL</b>	<b>\$ 96,180.00</b>
			<b>TESTING</b>			
110	SPECIAL	30	ASPHALT EXTRACTION TEST, AS PER D-73	EACH	\$ 50.00	\$ 1,500.00
111	SPECIAL	30	THICKNESS OF COMPACTED ASPHALT TEST, AS PER D-73	EACH	\$ 50.00	\$ 1,500.00
112	SPECIAL	30	CONCRETE CYLINDER TEST (4 SPECIMENS PER SET), AS PER D-73	SETS	\$ 50.00	\$ 1,500.00
113	SPECIAL	30	SUBSEQUENT SLUMP AND TEMPERATURE TEST, AS PER D-73	EACH	\$ 10.00	\$ 300.00
114	SPECIAL	30	SUBSEQUENT AIR CONTENT AND TEMPERATURE TEST, AS PER D-73	EACH	\$ 10.00	\$ 300.00
115	SPECIAL	2	FLEXURAL STRENGTH OF CONCRETE (BEAM) TEST (ASTM C-78), AS PER D-73	EACH	\$ 100.00	\$ 200.00
116	SPECIAL	200	TECHNICIAN WITH NUCLEAR DENSITY METER (SUBGRADE COMPACTION, SUBBASE, ASPHALT), AS PER D-73	HOURL	\$ 50.00	\$ 10,000.00
117	SPECIAL	6	PROCTOR TEST, AS PER D-73	EACH	\$ 100.00	\$ 600.00
					<b>SUBTOTAL</b>	<b>\$ 15,900.00</b>
			<b>MISCELLANEOUS</b>			
118	614	LUMP	MAINTAINING TRAFFIC, AS PER PLAN	LS	\$ 100,000.00	\$ 100,000.00
119	619	12	FIELD OFFICE, TYPE B	MNTH	\$ 3,000.00	\$ 36,000.00
120	619	LUMP	COMPUTER EQUIPMENT FOR TYPE B FIELD OFFICE, AS PER D-46, FOR CITY OWNERSHIP	LS	\$ 2,000.00	\$ 2,000.00
121	619	12	ADDITIONAL SMARTPHONE FOR CITY INSPECTOR, AS PER D-45	MNTH	\$ 125.00	\$ 1,500.00
122	619	LUMP	DIGITAL CAMERA FOR CITY OWNERSHIP	LS	\$ 500.00	\$ 500.00

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123	623	LUMP	CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN	LS	\$ 10,000.00	\$ 10,000.00
124	624	LUMP	MOBILIZATION	LS	\$ 200,000.00	\$ 200,000.00
125	832	LUMP	STORM WATER POLLUTION PREVENTION PLAN	LS	\$ 5,000.00	\$ 5,000.00
126	832	LUMP	EROSION CONTROL	LS	\$ 15,000.00	\$ 15,000.00
127	SPECIAL	LUMP	AS-BUILT RECORD DRAWINGS	LS	\$ 5,000.00	\$ 5,000.00
128	SPECIAL	LUMP	PRE-CONSTRUCTION VIDEOGRAPHY, AS PER PLAN	LS	\$ 2,500.00	\$ 2,500.00
129	SPECIAL	LUMP	PRE-CONSTRUCTION VIDEOGRAPHY, AS PER D-36	LS	\$ 2,500.00	\$ 2,500.00
130	SPECIAL	2	PROJECT SIGNS FURNISHED AND PLACED	EACH	\$ 750.00	\$ 1,500.00
131	SPECIAL	LUMP	ENGINEERING & CONSTRUCTION FORCE ACCOUNT (FA-1A)	LS	\$ 75,000.00	\$ 75,000.00
132	SPECIAL	LUMP	CLEVELAND WATER DEPARTMENT FORCE ACCOUNT	LS	\$ 25,000.00	\$ 25,000.00
133	SPECIAL	LUMP	CLEVELAND WATER POLLUTION CONTROL FORCE ACCOUNT	LS	\$ 50,000.00	\$ 50,000.00
					<b>SUBTOTAL</b>	<b>\$ 531,500.00</b>
<b>Estimated Project Subtotal</b>						<b>\$10,620,319</b>
<b>Contingency (30%)</b>						<b>\$3,186,096</b>
<b>Inflation 2018 (10.6%)</b>						<b>\$1,463,480</b>
<b>Total Probable Construction Cost</b>						<b>\$15,269,895</b>
<b>Estimated Engineering Design Fees (8% of Construction)</b>						<b>\$1,221,592</b>

Note: The costs shown in this estimate represent an estimate of probable construction costs prepared in good faith and with reasonable care. Michael Baker has no control over the costs of construction labor, materials, or equipment, nor over competitive bidding or negotiating methods and does not make any commitment or assume any duty to assure that bids or negotiated prices will not vary from this estimate.

Estimate does not include: R/W Land Cost, Utility Relocation Cost or Construction Engineering and Inspection Costs