

Chapel Hill  
**transit**

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Chapel Hill Town Council Work Session

October 16, 2019

**NORTH**  
**SOUTH** **BUS RAPID TRANSIT**

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# Agenda

- Welcome and Introductions
- Project Schedule
- Traffic Engineering and Design Update
- Questions / Next Steps / Action Items

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**NORTH BUS RAPID TRANSIT**  
**SOUTH**



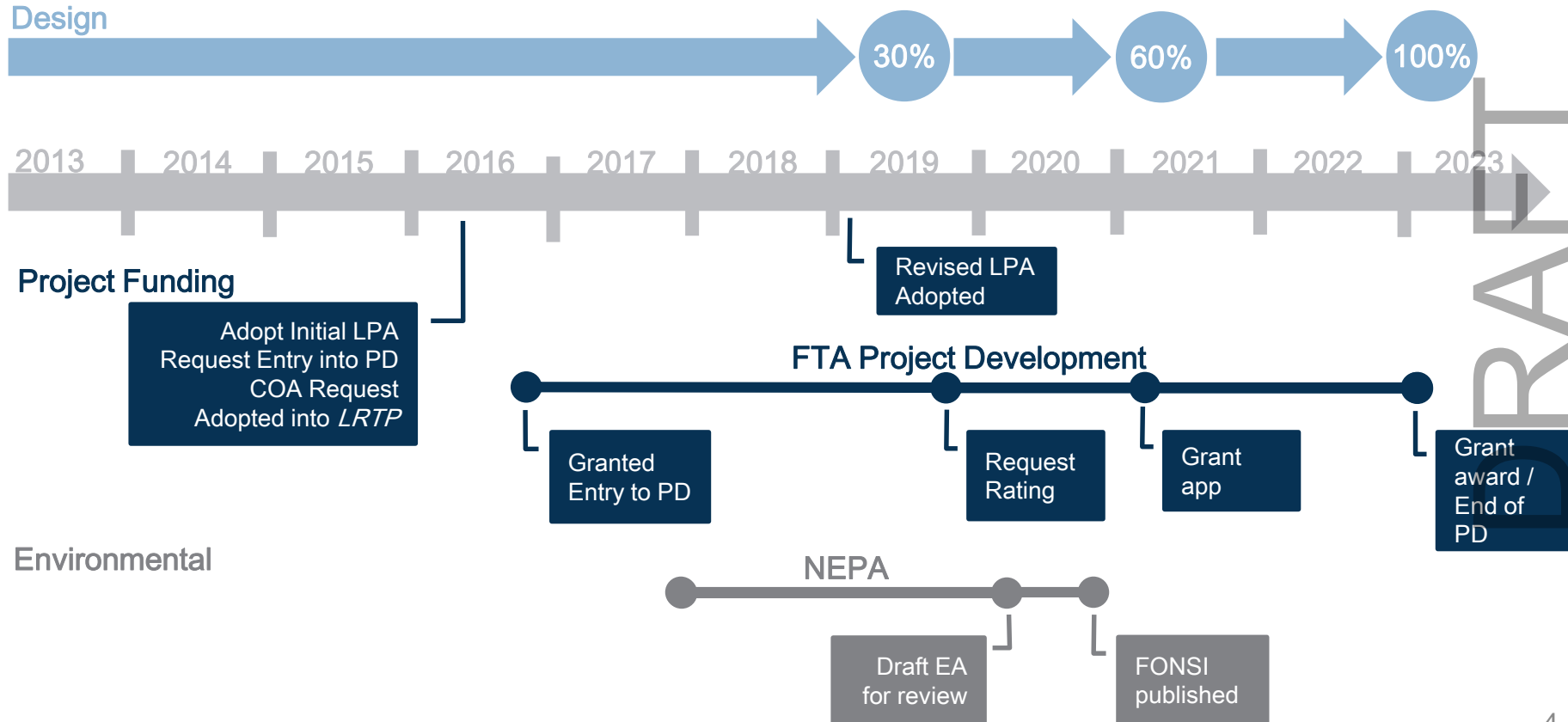
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**PROJECT SCHEDULE**

# NEPA and 30% Design Schedule





# NEPA and 30% Design Schedule

- Applied for rating with FTA on August 23, 2019
- Fall 2019 – LPA finalized
- Late Fall 2019 – Request Revised NEPA Class of Action
- Late Fall 2019 – Draft 30% design plans handed over to NEPA Team
- Late Fall/Winter 2019 – 30% design plans are finalized based on FTA feedback
- Early Fall 2020 – NEPA document published for review

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**TRAFFIC ENGINEERING AND DESIGN UPDATE**

# Design Updates

- Traffic Engineering

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# Traffic Engineering

- Existing Conditions Model
  - Approved by NCDOT
- Build Models
  - Three Alternatives
  - Meetings held with NCDOT in August 5, 2019 and August 20, 2019
  - Meetings with Technical/Policy Committee and Transit Partner in September 2019
  - Analysis for current traffic volumes

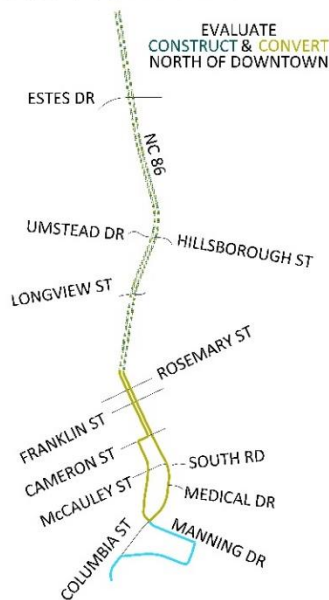




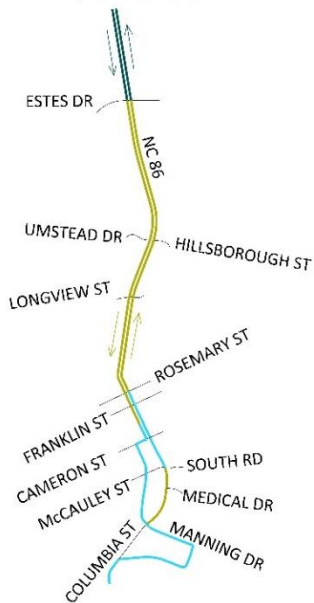
# Traffic Engineering Alternatives

MIXED  
CONSTRUCT  
CONVERT

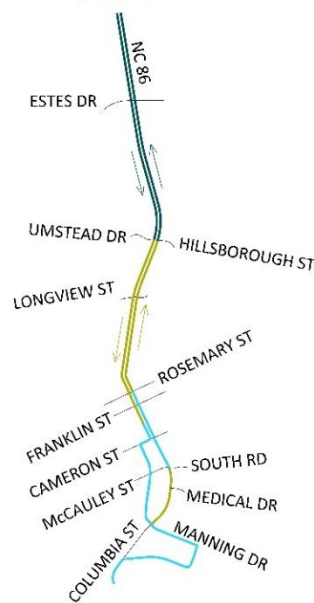
REVISED LPA



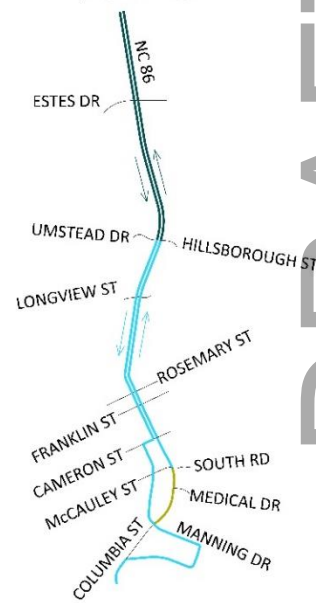
ALT 1



ALT 2



ALT 3



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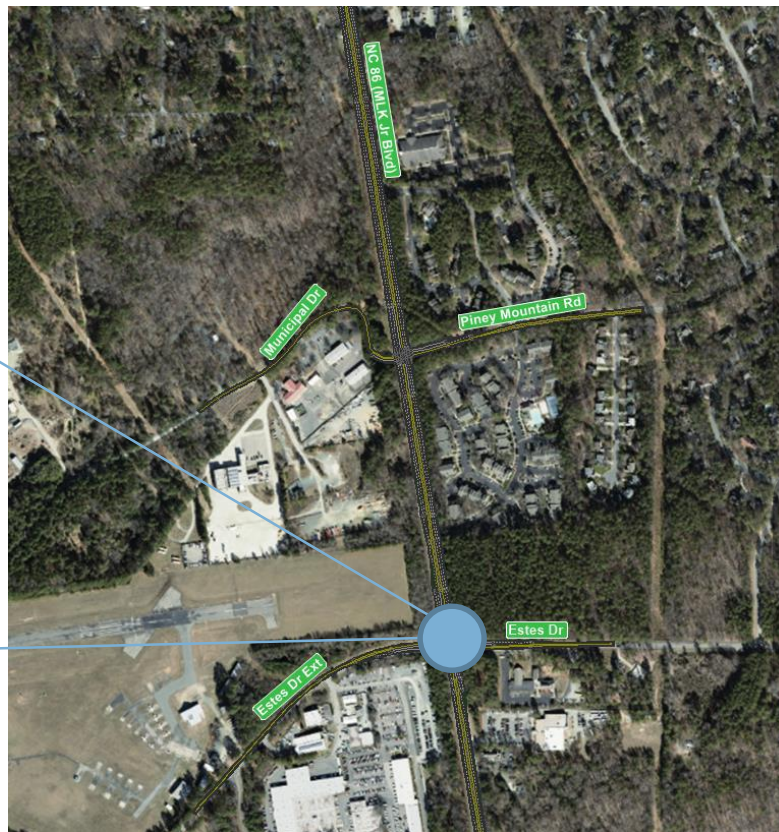
## Preliminary Results – Average Travel Times on NC 86 Between Manning and Northfield

Northbound Travel Time for General Purpose Vehicles		
Alternative	AM Average Travel Time (minutes)	PM Average Travel Time (minutes)
Base Year (2018) No-Build	8.7	11.2
Base Year (2018) Build - Locally Preferred Alternative	8.8	11.6
Base Year (2018) Build Alternative 1	8.1	15.3
Base Year (2018) Build Alternative 2	8.4	11.0
Base Year (2018) Build Alternative 3	8.3	10.1

Southbound Travel Time for General Purpose Vehicles		
Alternative	AM Average Travel Time (minutes)	PM Average Travel Time (minutes)
Base Year (2018) No-Build	9.5	11.0
Base Year (2018) Build - Locally Preferred Alternative	18.9	17.5
Base Year (2018) Build Alternative 1	13.6	11.3
Base Year (2018) Build Alternative 2	9.9	9.8
Base Year (2018) Build Alternative 3	8.9	9.6

# Estes Drive – Preliminary LOS (Delay) Results

Condition	AM Peak	PM Peak
Base Year (2018) No Build	D (38.6)	E (67.5)
Base Year (2018) No Build - <i>with committed improvements</i>	D (35.3)	D (54.5)
Base Year (2018) Build Alternative 1	E (65.4)	F (105.8)
Base Year (2018) Build Alternative 2	C (32.3)	D (50.3)
Base Year (2018) Build Alternative 3	C (30.5)	D (46.6)





# Rosemary Street – Preliminary LOS (Delay) Results

Condition	AM Peak	PM Peak
Base Year (2018) No Build	C (27.4)	E (69.9)
Base Year (2018) Build - Locally Preferred Alternative	F (232.1)	F (174.8)
Base Year (2018) Build Alternative 1	C (28.4)	F (84.0)
Base Year (2018) Build Alternative 2	D (50.5)	F (89.2)
Base Year (2018) Build Alternative 3	C (26.2)	E (66.2)







# Cameron Street – Preliminary LOS (Delay) Results

Condition	AM Peak	PM Peak
Base Year (2018) No Build	E (57.2)	E (74.7)
Base Year (2018) Build - Locally Preferred Alternative	F (103.2)	F (147.1)
Base Year (2018) Build Alternative 1	E (63.7)	E (78.2)
Base Year (2018) Build Alternative 2	F (81.2)	F (82.8)
Base Year (2018) Build Alternative 3	E (57.3)	E (71.2)





# North Columbia St. Near Town Hall



Existing



Convert

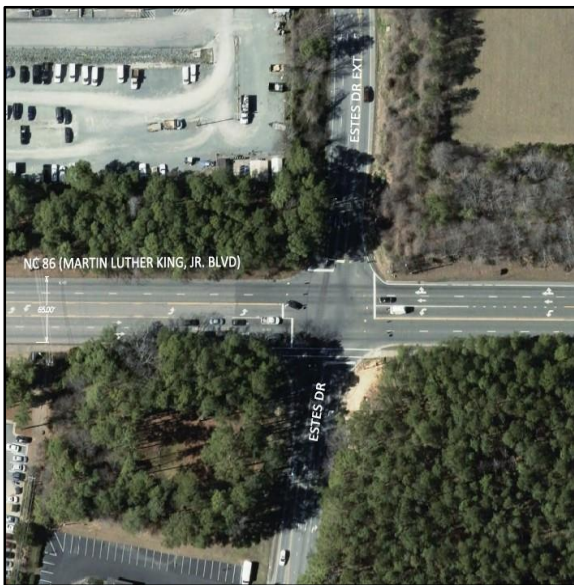


Construct





# Estes Drive



Existing



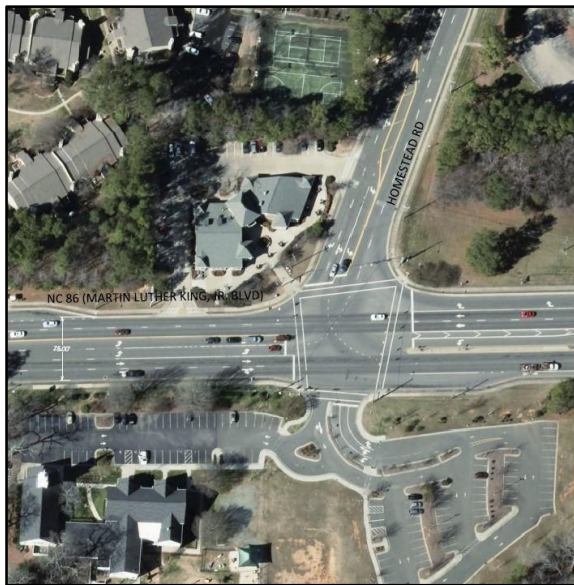
Convert



Construct



# Homestead Road



Existing



Convert



Construct





# NCDOT Official Recommendation Process

- Finalize traffic analysis for the future traffic condition
  - Committees have seen the results of evaluating Existing volumes
  - Evaluating a Future opening year (2024) and Horizon year (2045) from a development/traffic growth standpoint
  - This is consistent with what NCDOT expects from the analysis.
- Provide the draft traffic report and submit to the Town of Chapel Hill and NCDOT for review
- Town of Chapel Hill and NCDOT provide review and comments
- Finalize and sign/seal traffic report

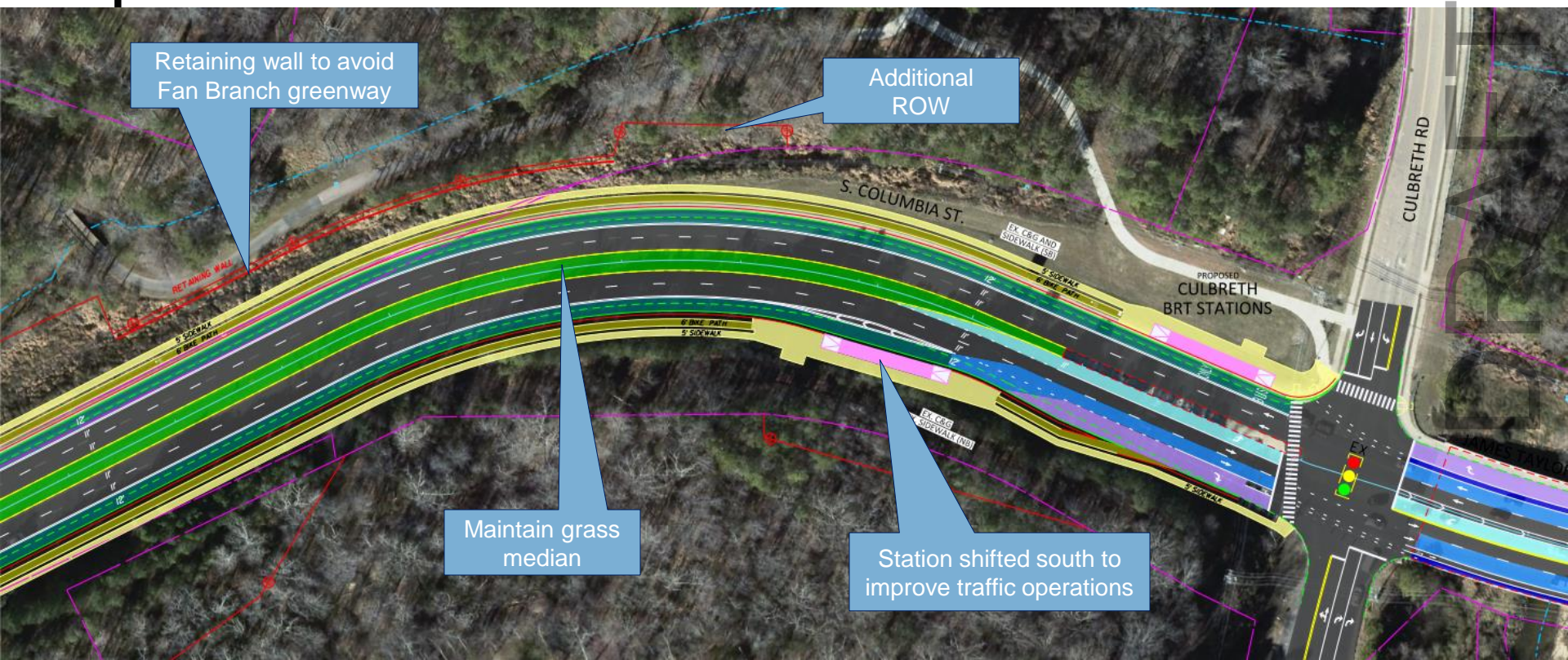
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# Design Updates

- BRT Guideway Updates from Design Charrette
- Landscape Guidelines
- Bicycle & Pedestrians facilities
- Capital Costs

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## Update - NC 86 / MLK – Median islands





# Update - NC 86 / MLK – Median islands



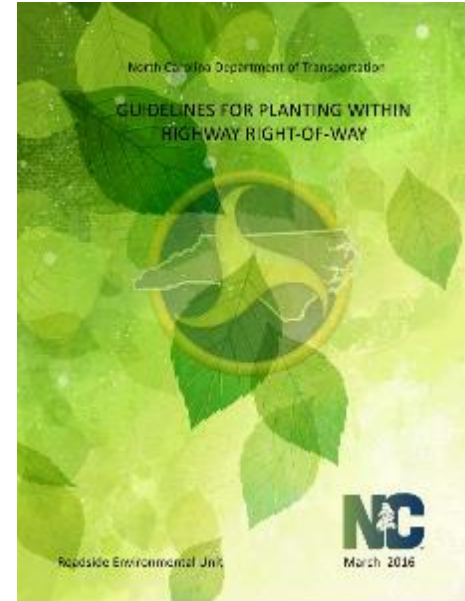






# NCDOT Landscaping Guidelines

- Setbacks
- Sight distance
- Native species
- Maintenance
  - Root systems
  - Utility lines



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# Bicycle & Pedestrian Facilities

Eubanks P&R

Downtown

Hospital

Southern Village

Facility	Northbound Length	Southbound Length
6' Bike Path / 5' Sidewalk	3.0 mi	2.9 mi
12' Multi-Use Path	1.4 mi	1.0 mi
10' Multi-Use Path	0.5 mi	0.9 mi
<10' Multi-Use Path	0.0 mi	0.1 mi
Total New	4.9 mi	4.9 mi
5' Bike Lane	1.9 mi	1.9mi
<b>Project Total</b>	<b>6.8 mi</b>	<b>6.8 mi</b>

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# Capital Costs

- \$141M (Year of Expenditure)

- Unit Costs

— Adjusted 2018 NCDOT Ave Bid Unit Costs

— Other transit projects

- Contingencies

— Infrastructure Costs 30%

— Right of Way 10%

— Vehicles 5%

— Professional Services 0%

Preliminary Conceptual Opinion of Probable Cost									
Chapel Hill Transit						Today's Date			
North South BRT - Chapel Hill, NC						Yr of Base Year \$			
Applic. for SSGA						Yr of Revenue Ops			
Segment: <b>One (1) US 15-501</b>						Option: <b>SSGA v1</b>			
						Runwayway: <b>Mixed - Sumac/CurbSide Construct 15-501</b>			
						Project Summary			
Road Name:	Segment Length		Subtotal		% Contingency		\$ Contingency		Summary Total
From: Sumac Road (Southern Village EOL)	Miles 1.13		\$ 16,464,212		25%		\$ 4,173,453		\$ 21,887,666
To: Culbreth Rd / Mt Carmel Church Rd	LF 5,990						Cost/Route-Mile (\$ million)		18.68
Description	Unit	2015 Unit Cost (\$)	Quantity	Notes	Subtotal	% Contingency	\$ Contingency	Summary Total (Year 2015 \$)	
<b>10 GUIDEWAY &amp; TRACK ELEMENTS (route miles)</b>									
10.02 Guideway At-Grade Semi-East: Bituminous Guideway Reconstruction	SFT	\$ 16	58,222	Roadway widening and reconstruction for BRT	\$ 2,002,035	30%	\$ 600,610	\$ 2,602,645	
10.02 Guideway At-Grade Semi-East: Concrete Guideway Pavement	EA	\$ 19,000	2	2 80"x12" conc bus pad at each platform	\$ 38,000	30%	\$ 11,400	\$ 49,400	
10.02 Guideway At-Grade Semi-East: Mill and Resurface	SY	\$ 12	50,763	For existing pavement	\$ 609,156	30%	\$ 182,747	\$ 791,903	
10.02 Guideway At-Grade Semi-East: 2'-4" C&G	LF	\$ 10	6,406	Widening locations	\$ 64,067	30%	\$ 19,440	\$ 83,507	
10.02 Guideway At-Grade Semi-East: New Drainage	LF	\$ 41	41	Drainage at locations with no ex. dg systems	\$ 1,681	30%	\$ 504	\$ 2,185	
10.02 Guideway At-Grade Semi-East: Drainage	LF	\$ 26	9,075	Drainage at locations with existing dg systems	\$ 235,890	30%	\$ 70,765	\$ 306,655	
10.02 Guideway At-Grade Semi-East: 1'-4" Median C&G	LF	\$ 15	-	Median curb	\$ -	30%	\$ -	\$ -	
10.02 Guideway At-Grade Semi-East: Conc. Median/Island	SY	\$ 59	-	Kept in	\$ -	30%	\$ -	\$ -	
10.02 Guideway At-Grade Semi-East: Pav Marking and Signing	LF	\$ 6	5,990	Thermoplastic w/ pt markers and new signs	\$ 35,938	30%	\$ 10,781	\$ 46,719	
10.02 Guideway At-Grade Semi-East: Pav Marking and Signing at Intersections	EA	\$ 4,504	6	6 H-V crossing, arrows, BUS ONLY & signs	\$ 27,207	30%	\$ 8,162	\$ 35,369	
10.02 Guideway At-Grade Semi-East	EA	\$ -	-	-	\$ -	30%	\$ -	\$ -	
10.02 Guideway At-Grade Semi-East	EA	\$ -	-	-	\$ -	30%	\$ -	\$ -	
10.02 Guideway At-Grade Semi-East	EA	\$ -	-	-	\$ -	30%	\$ -	\$ -	
10.02 Guideway At-Grade Mixed Traffic: Mill and Overlay	EA	\$ -	-	-	\$ -	30%	\$ -	\$ -	
10.02 Guideway At-Grade Mixed Traffic: Pav Marking and Signing	SY	\$ 12	-	-	\$ -	30%	\$ -	\$ -	
10.02 Guideway At-Grade Mixed Traffic: Pav Marking and Signing at Intersections	EA	\$ 4,504	-	-	\$ -	30%	\$ -	\$ -	
					\$ 1,200,000	30%	\$ 360,000	\$ 1,560,000	
<b>20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)</b>									
20.01 BRT Station - CurbSide Loading Platform, Shelter & amenities	EA	\$ 400,000	3	Platform count for stations	\$ 1,200,000	30%	\$ 360,000	\$ 1,560,000	
20.01 BRT Station	EA	\$ 400,000	-	-	\$ -	30%	\$ -	\$ -	
20.06 Structured Parking - per space	Pkg Space	\$ 25,000	-	-	\$ -	30%	\$ -	\$ -	
<b>30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS</b>									
30.02 Administration Building: Office, sales, storage, revenue counting	LS	\$ 25,000	-	Additional supplies/equipment for BRT admin	\$ -	30%	\$ -	\$ -	
30.02 Light Maintenance Facility	per bus	\$ 25,000	-	New equipment for BRT bus fleet	\$ -	30%	\$ -	\$ -	
30.02 Storage or Maintenance of Way Building	LS	\$ -	-	Use existing facility	\$ -	30%	\$ -	\$ -	
<b>40 SITEWORK &amp; SPECIAL CONDITIONS</b>									
40.01 Sitework for Stations	EA	\$ 25,000	3	per platform location	\$ 75,000	30%	\$ 22,500	\$ 97,500	
40.02 Utility Relocation Allowance - Low	LF	\$ 25	-	areas with minimal, but some expected conflicts	\$ -	30%	\$ -	\$ -	
40.02 Utility Relocation Allowance - Medium	LF	\$ 100	-	areas with minor but expected conflicts	\$ -	30%	\$ -	\$ -	
40.02 Utility Relocation Allowance - High	LF	\$ 200	5,040	areas with numerous and expected conflicts	\$ 1,008,000	30%	\$ 302,400	\$ 1,310,400	
40.02 Utility Relocation for Stations	EA	\$ 10,000	3	per platform location	\$ 30,000	30%	\$ 9,000	\$ 39,000	
40.02 Street Lighting Modification Allowance	per Platform	\$ 4,000	-	per platform location	\$ 4,000	30%	\$ 1,200	\$ 5,200	
40.04 Haz mat contaminated soil removal/mitigation, ground water	LS	\$ 50,000	-	For minor impact to soil fly ash	\$ -	30%	\$ -	\$ -	
40.04 Environmental mitigation (e.g. wetlands, historical/archeologic, parks)	LS	\$ 1%	59,336	No bridge work	\$ 598	30%	\$ 178	\$ 776	
40.05 Video Bridge	SFT	\$ 125	-	-	\$ -	30%	\$ -	\$ -	
40.05 Retaining walls (Std CIP)	SFT	\$ 150	4,419	Minimize impacts and ROW takes	\$ 737,862	30%	\$ 221,371	\$ 959,233	

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