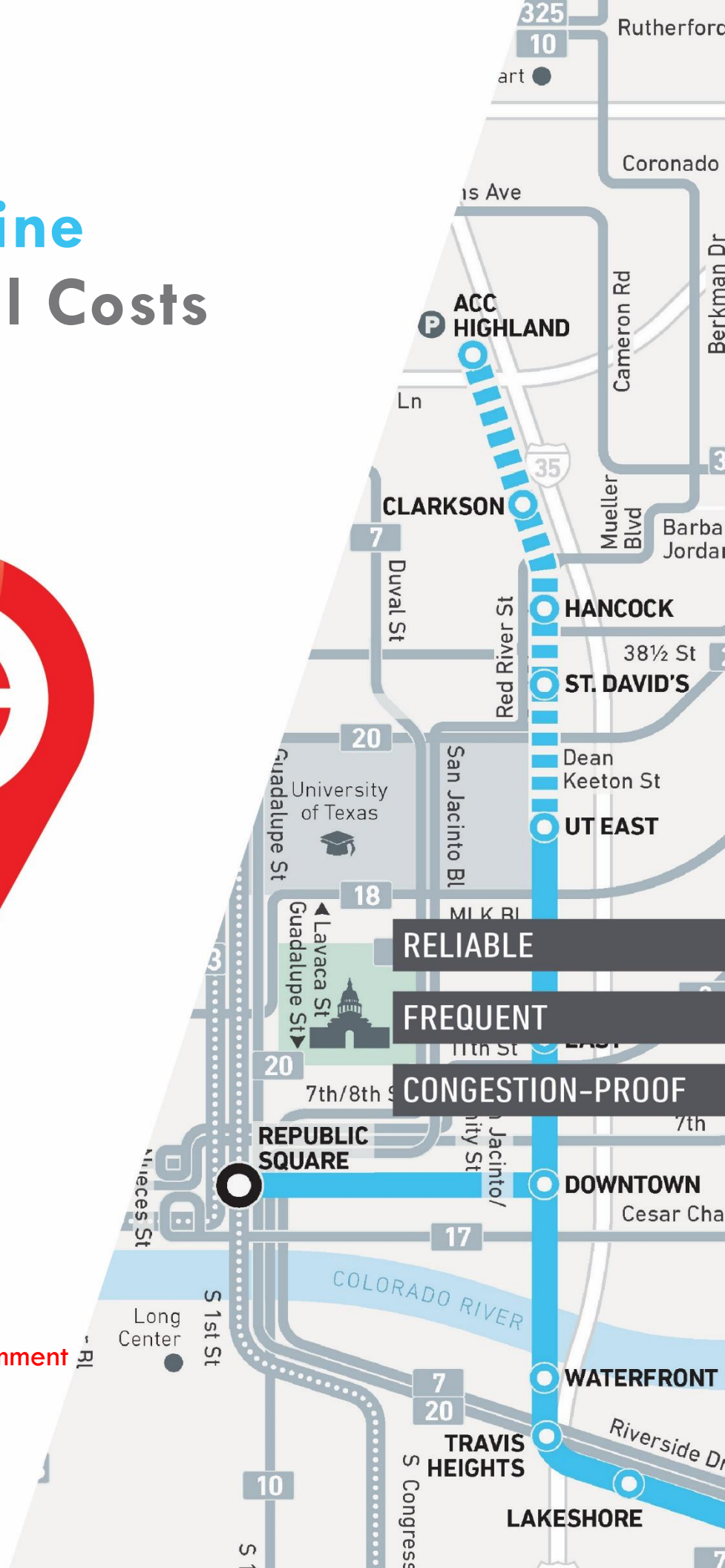


# » Blue Line Capital Costs



Draft for Public Review and Comment

October 30, 2019



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## 1.0 Introduction

This technical memorandum includes the capital cost estimates for the Blue Line Corridor. Capital cost estimates identify the one-time expenditure to build a transit project and provide information for the evaluation of the appropriate alternative to move forward as the Locally Preferred Alternative (LPA). Should a Build Alternative be selected, cost estimates are vital to the advancement of a project selected for FTA Project Development and Engineering<sup>1</sup> phases. Standard Cost Categories (SCC) represent the Federal Transit Administration's (FTA) format for the reporting, estimating, and managing of transit capital projects and are used in this estimate<sup>2</sup>. Financing costs (SCC 100) have not been estimated at this time as that will be a function of the development of the financial plan for an LPA.

### 1.1 Blue Line Corridor Overview

The proposed Blue Line Corridor would connect the Austin Community College (ACC) Highland Campus through Downtown Austin to Austin Bergstrom International Airport (AUS). This is one of the corridors included in Capital Metropolitan Transportation Authority's (Capital Metro) Project Connect Long Term Vision Plan (Vision Plan) aimed at providing High-Capacity Transit (HCT).

Alternatives evaluated for the capital cost estimates include the Transportation System Management (TSM) Alternative and two Build Alternatives, Alternative 1, and Alternative 2. The two Build Alternatives are distinguished by the Blue Line Corridor's Colorado River (Lady Bird Lake) crossing. The Build Alternatives are further defined below.

- **Build Alternative 1 (Trinity).** This alternative includes a new Colorado River crossing near Trinity Street.
- **Build Alternative 2 (South 1<sup>st</sup> Street).** This alternative includes a new Colorado River crossing near the South 1<sup>st</sup> Street bridge.

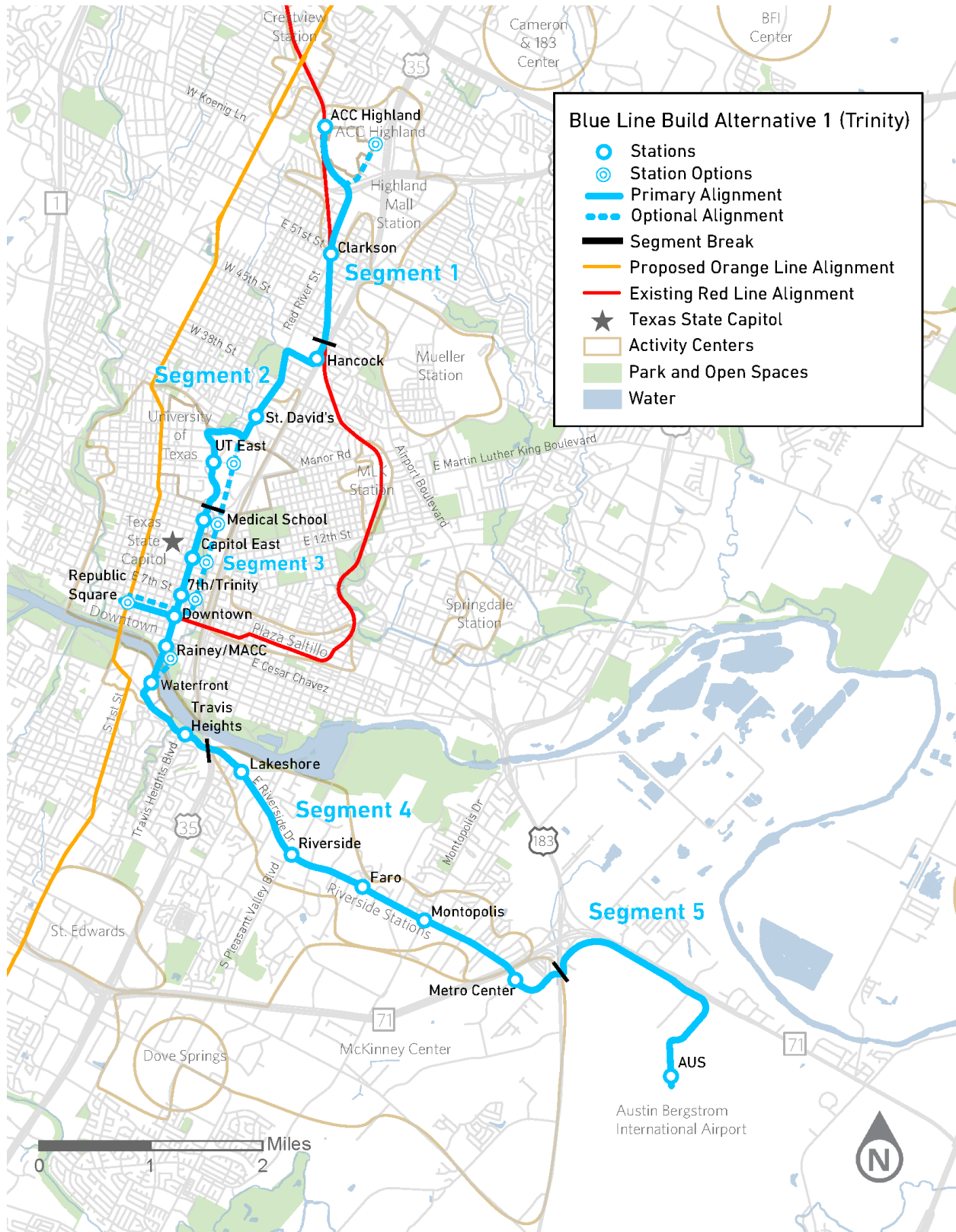
The Blue Line Corridor is comprised of five defined segments listed below and shown in Error! Not a valid bookmark self-reference. on the following page.

- **Segment 1:** Highland (ACC Highland to 45th Street via Airport Boulevard)
  - **Segment 1 using Option 1:** (East Highland Boulevard/ Middle Fiskville to 45<sup>th</sup> Street/ Airport Boulevard)
- **Segment 2:** Hancock (45th Street to Martin Luther King Boulevard via Trinity Street)
  - **Segment 2 using Option 1:** (45th Street to Martin Luther King Boulevard via Robert Dedman Drive)
- **Segment 3:** Central (Martin Luther King Boulevard to IH-35)
  - **Segment 3 BA1 using Option 1:** (New Colorado River Crossing + Trinity/4th)
  - **Segment 3 BA1 using Option 2:** (New Colorado River Crossing + Red River/5<sup>th</sup>)
  - **Segment 3 BA2 using Option 1:** (New crossing at South 1<sup>st</sup> street + Red River/5<sup>th</sup>)
- **Segment 4:** East Riverside (IH-35 to Riverside Drive/SH 183)
- **Segment 5:** Airport (Riverside Drive/US 183 to AUS)

<sup>1</sup> For the agency to be a recipient of FTA New Starts and Core Capacity funding, the law requires two phases. Source: <https://www.transit.dot.gov/CIG>

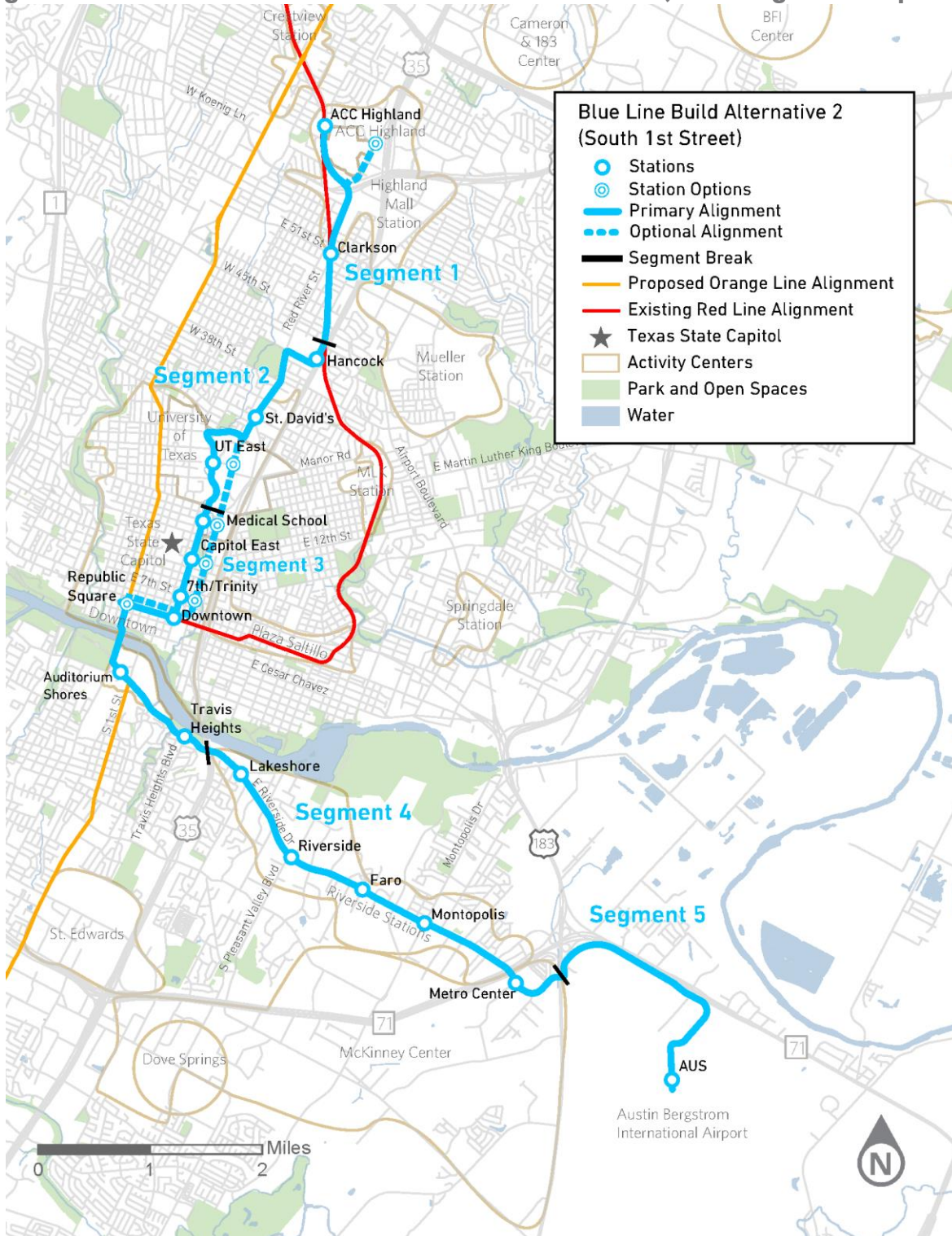
<sup>2</sup> Source: <https://www.transit.dot.gov/funding/grant-programs/capital-investments/standard-cost-categories-capital-projects>

**Figure 1. Blue Line Build Alternative 1 Trinity (With Alignment Options)**





**Figure 2. Blue Line Build Alternative 2 South 1<sup>st</sup> Street (With Alignment Options)**



## 2.0 Alternatives

Capital cost estimates were prepared for each of the Blue Line Corridor Build Alternatives and the TSM Alternative.

For each of the Build Alternatives, the costs for both Bus Rapid Transit (BRT) and Light Rail (LRT) modes are estimated. Costs estimates for the Build Alternatives include per segment costs for the primary alignments and alignment options as well as the transitway types. The primary alignments and alignment options are shown in **Figure 1** and **Figure 2**.

**Table 1** represents the TSM Alternative, **Table 3** represents Build Alternative 1 for the primary options, **Table 4** represents Build Alternative 2 for the primary options. **Tables 5 to 15** provide a breakdown of each segment per option costs.

### 2.1 Street-Level (At-Grade) Transitway Estimating

It was assumed for Street-Level (at-grade) transitway, full roadway reconstruction is required to add in the transitway. Reconstruction includes roadway, sidewalks, intersections, signals and pedestrian crossing. Carried in the primary options are elevated segments at Red Line, Colorado River, I-35, and Austin Bergstrom International Airport (AUS). In locations where existing Right-of-Way (ROW) is constrained, a minimum of 6' feet beyond the back of roadway curb was carried to assume construction of a sidewalk. Throughout the alignment there are subsegments that are designed to be Elevated transitway due to constraints such as some of the airport, Travis Heights, some river crossings and over the Red Line. Many of the driveways, alley ways and non-signalized intersections would require reconfiguration to accommodate turning movements of vehicles including, but not limited to, truck freight and emergency vehicles. Transit signal priority was carried throughout the Blue Line Corridor.

### 2.2 Elevated Transitway Estimating

For an Elevated transitway, only carried in Segments 2 and 3, the reconstruction of the roadway to fit the structure would be limited to the transitway. Sitework for roadway and utility relocation was assumed at the length of the transitway for 1-lane width. The Elevated transitway will require 2-lanes reconstructed and the remaining lanes milled and resurfaced. Thru-Truss structure type was used for a new crossing at Colorado River and aerial structure type was used for full segment estimation. Intersections and signal modifications will be less impacted due to the elevated structure, but modifications are needed. Outside of the segments with Elevated transitway, the Street-Level transitway was used for capital cost estimating.

### 2.3 Underground Transitway Estimating

For an Underground transitway, Segments 2 and 3 were assumed underground to be underground for most of the segments' length. For the remaining segments (Segments 1, 4, and 5) which are not Underground transitway, the Underground transitway estimates reflect Street-Level capital costs. To provide an Underground transitway (either Cut-and-Cover or Tunnel) through Segments 2 and 3, the additional capital cost is \$1.9 to \$2.5 billion. These values also reflect an overlap of the Orange Line Corridor for Build Alternative 2 in Segment 3, and represent a cost estimate that is fully independent of the Orange Line. The following assumptions were considered in the development of the Underground cost estimates as detailed below.

#### *Cut-and-Cover Transitway Estimating*

For Cut-and-Cover transitway, only carried in Segments 2 and 3, it was assumed to be underground for all of Segment 2. For Segment 3 it was assumed to be underground up to the crossing of the Colorado River

and Street-Level South of the Colorado River. The reconstruction of the entire ROW was assumed for Cut-and-Cover. Utility relocation for Cut-and-Cover was assumed at a high level as specific site work remains unknown until Project Development, Engineering, and sometimes through Construction. Outside of the Cut-and-Cover segments, the Street-Level alignment was used for capital cost estimating.

#### *Tunnel Transitway Estimating*

For the Tunnel transitway, only carried in Segments 2 and 3, it was assumed to be entirely underground for both segments. Reconstruction of the entire ROW was limited to station locations only. This includes costs for roadway, sidewalks, and intersections. Outside of the Tunnel segments, the Street-Level transitway was used for capital cost estimating. These costs are not reflective of the underground tunnel along 4<sup>th</sup> street that was studied separately.

#### 2.4 Orange Line Estimating

The cost estimates for the portion of Segment 3 that overlaps the Orange Line Corridor in Build Alternative 2 (South 1<sup>st</sup> Street) are based on the Orange Line Corridor cost estimates for South 1<sup>st</sup> Street from Downtown to Riverside. Orange Line estimates for mostly Street-Level and mostly Elevated transitways were added to Blue Line SCC Category 10, Guideway & Track Elements for each appropriate transitway type.

#### 2.5 Corridor-wide Project Element Estimates

Support facilities, shops, administrative buildings and vehicles were evenly split among the segments, but do not represent the cost associated with each segment. For cost estimating purposes, BRT and LRT stations are assumed to have the same size and type of platform throughout the Blue Line Corridor. Station amenities include two real time signs per platform, four fare validators per station, and two ticket vending machines per platform. One elevator and two escalators are assumed at all station platforms that are Grade Separated. Fleet vehicles were calculated based on the operating plan for Street-Level and Grade Separated Build Alternatives and included a 20% spare ratio based on the maximum peak hour vehicles (see **Table 2**). The aggregate number of Fleet Vehicles was divided out per segment but does not represent the number of vehicles to only operate on that segment. In **Table 2** these costs are shown in 2019 dollars, in **Tables 3-15** these costs are shown as 2025 costs which is assumed as the midpoint year of construction.

### 3.0 Capital Cost Estimate Results

The capital cost estimates for the TSM Alternative and Build Alternatives 1 (Trinity) and 2 (South 1<sup>st</sup> Street) are provided below. Unit costs used to develop the Build Alternative capital cost estimates were developed with Capital Metro using similar projects and scaling them to the local market.

The unit costs for TSM Alternative are based on the Metro Rapid Navy Line. In the TSM Alternative, it is assumed that 56 stations would need to be built. Costs for all Build Alternatives were escalated by three and one half (3.5) percent and are presented in the year which represents the assumed midpoint of construction, which is assumed to be 2023 for the TSM Alternative and 2025 for the Build Alternatives.

**Table 1. TSM Alternative (2023\$)**

SCC Category	BRT
10 GUIDEWAY & TRACK ELEMENTS	-
20 STATIONS, STOPS, TERMINALS, INTERMODAL	\$42,501,000
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	-
40 SITEWORK & SPECIAL CONDITIONS	\$4,577,000
50 SYSTEMS	\$9,509,000
60 ROW, LAND, EXISTING IMPROVEMENTS	-
70 VEHICLES	-
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	\$20,324,000
90 UNALLOCATED CONTINGENCY	\$9,772,000
100 FINANCE CHARGES	-
<b>Total Project Cost (10 - 100)</b>	<b>\$86,684,000</b>

For the Build Alternatives, peak vehicle requirements were calculated as part of the service plan documented in the *Blue Line Refined Alternatives Definition Technical Memorandum* dated September 9, 2019 and as documented in the *Operating and Maintenance Technical Memorandum*. The peak vehicle requirements were escalated by 20 percent to reflect required fleet vehicles as shown in **Table 2**. The fleet vehicles for each Build Alternative were then carried forward to the capital costs for each of the Build Alternatives.



**Table 2. Vehicle Assumptions for Build Alternatives**

	Vehicles needed for Street-Level		Vehicles needed for Grade Separated			Capital Costs for Vehicles Street-Level		Capital Costs for Vehicles Grade Separated	
	Alt. 1 Trinity	Alt. 2 S. 1 <sup>st</sup> St.	Alt. 1 Trinity	Alt. 2 S. 1 <sup>st</sup> St.	Capital Costs Per Vehicle	Alt. 1 Trinity	Alt. 2 S. 1 <sup>st</sup> St.	Alt. 1 Trinity	Alt. 2 S. 1 <sup>st</sup> St.
BRT Alternatives									
Peak Vehicles	14	19	17	15	\$1,435,000	\$20,090,000	\$27,265,000	\$24,395,000	\$21,525,000
Fleet Vehicles	17	23	21	18		\$24,395,000	\$33,005,000	\$30,135,000	\$25,830,000
LRT Alternatives									
Peak passenger cars	22	20	18	16	\$4,500,000	\$31,570,000	\$28,700,000	\$25,830,000	\$22,960,000
Fleet Passenger cars	27	24	22	20		\$38,745,000	\$34,440,000	\$31,570,000	\$28,700,000

\*Fleet Vehicle assumes 20% spare on top of Peak Vehicles

**Table 3. Build Alternative 1 (Trinity) (2025\$)**

SCC Category	Street-Level (At-Grade)		Elevated		Cut-and-Cover		Tunnel	
	BRT	LRT	BRT	LRT	BRT	LRT	BRT	LRT
10 GUIDEWAY & TRACK ELEMENTS	\$284,692,865	\$442,548,221	\$712,585,595	\$833,455,891	\$923,394,336	\$1,051,130,777	\$1,644,989,210	\$1,765,859,506
20 STATIONS, STOPS, TERMINALS, INTERMODAL	\$47,016,970	\$138,109,400	\$221,541,320	\$266,308,900	\$831,094,550	\$883,617,020	\$1,006,153,720	\$1,033,864,260
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	\$9,894,170	\$148,648,500	\$12,222,210	\$121,121,000	\$12,222,210	\$121,121,000	\$12,222,210	\$120,520,400
40 SITEWORK & SPECIAL CONDITIONS	\$349,641,962	\$450,096,713	\$341,384,498	\$397,964,814	\$568,910,807	\$627,115,346	\$511,738,383	\$563,472,914
50 SYSTEMS	\$30,219,045	\$300,012,391	\$25,814,803	\$284,285,001	\$26,223,783	\$284,706,851	\$23,618,108	\$280,770,231
60 ROW, LAND, EXISTING IMPROVEMENTS	\$71,195,170	\$73,725,135	\$51,560,113	\$54,090,078	\$23,619,182	\$26,149,147	\$23,619,182	\$26,098,966
70 VEHICLES	\$40,739,745	\$175,364,395	\$50,190,584	\$142,760,551	\$50,190,584	\$142,760,551	\$50,190,584	\$142,054,433
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	\$233,609,912	\$460,622,790	\$394,125,009	\$621,726,542	\$675,061,560	\$907,149,710	\$906,007,133	\$1,120,994,205
90 UNALLOCATED CONTINGENCY	\$92,552,712	\$271,227,594	\$156,440,572	\$248,691,097	\$259,364,762	\$357,153,349	\$346,271,110	\$436,502,989
100 FINANCE CHARGES								
<b>Total Project Cost (10 - 100)</b>	<b>\$1,159,562,553</b>	<b>\$2,460,355,138</b>	<b>\$1,965,864,703</b>	<b>\$2,970,403,873</b>	<b>\$3,370,081,775</b>	<b>\$4,400,903,751</b>	<b>\$4,524,809,641</b>	<b>\$5,469,161,831</b>

**Table 4. Build Alternative 2 (South 1<sup>st</sup> Street) (2025\$)**

SCC Category	Street-Level (At-Grade)		Elevated		Cut-and-Cover		Tunnel	
	BRT	LRT	BRT	LRT	BRT	LRT	BRT	LRT
10 GUIDEWAY & TRACK ELEMENTS	\$324,669,029	\$537,331,021	\$762,601,059	\$925,194,197	\$910,645,978	\$1,066,102,633	\$1,678,332,898	\$1,825,245,017
20 STATIONS, STOPS, TERMINALS, INTERMODAL	\$31,397,080	\$113,413,300	\$201,721,520	\$246,489,100	\$810,598,360	\$860,022,020	\$907,872,680	\$952,640,260
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	\$13,386,230	\$132,132,000	\$10,476,180	\$110,110,000	\$10,476,180	\$110,110,000	\$10,476,180	\$110,110,000
40 SITEWORK & SPECIAL CONDITIONS	\$335,801,055	\$436,302,803	\$320,476,325	\$374,652,704	\$532,832,751	\$588,868,184	\$488,620,587	\$538,354,908
50 SYSTEMS	\$28,588,363	\$293,091,191	\$25,038,528	\$275,972,983	\$25,038,528	\$276,287,583	\$22,737,228	\$273,986,285
60 ROW, LAND, EXISTING IMPROVEMENTS	\$58,708,529	\$58,645,280	\$34,220,999	\$36,953,361	\$22,607,196	\$25,339,558	\$22,607,196	\$25,339,558
70 VEHICLES	\$55,118,479	\$155,879,462	\$43,038,713	\$129,815,063	\$43,038,713	\$129,815,063	\$43,038,713	\$129,815,063
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	\$192,539,093	\$392,861,382	\$336,260,495	\$555,920,602	\$608,039,388	\$832,032,493	\$833,899,496	\$1,052,510,874
90 UNALLOCATED CONTINGENCY	\$76,997,318	\$237,676,830	\$132,289,623	\$222,720,912	\$233,400,439	\$326,623,644	\$318,393,092	\$409,591,118
100 FINANCE CHARGES								
<b>Total Project Cost (10 - 100)</b>	<b>\$1,117,205,177</b>	<b>\$2,357,333,267</b>	<b>\$1,866,123,442</b>	<b>\$2,877,828,922</b>	<b>\$3,196,677,533</b>	<b>\$4,215,201,177</b>	<b>\$4,325,978,071</b>	<b>\$5,317,593,082</b>

**Table 5. Segment 1 Primary for Build Alternatives (2025\$)**

SCC Category	Street-Level (At-Grade)		Elevated		Cut-and-Cover		Tunnel	
	BRT	LRT	BRT	LRT	BRT	LRT	BRT	LRT
10 GUIDEWAY & TRACK ELEMENTS	\$4,530,240	\$28,087,488	N/A	N/A	N/A	N/A	N/A	N/A
20 STATIONS, STOPS, TERMINALS, INTERMODAL	\$2,689,830	\$15,100,800	N/A	N/A	N/A	N/A	N/A	N/A
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	\$1,978,834	\$29,729,700	N/A	N/A	N/A	N/A	N/A	N/A
40 SITEWORK & SPECIAL CONDITIONS	\$68,111,981	\$78,092,804	N/A	N/A	N/A	N/A	N/A	N/A
50 SYSTEMS	\$3,775,200	\$32,855,251	N/A	N/A	N/A	N/A	N/A	N/A
60 ROW, LAND, EXISTING IMPROVEMENTS	\$1,517,979	\$2,023,972	N/A	N/A	N/A	N/A	N/A	N/A
70 VEHICLES	\$8,147,949	\$35,072,879	N/A	N/A	N/A	N/A	N/A	N/A
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	\$25,471,230	\$63,092,148	N/A	N/A	N/A	N/A	N/A	N/A
90 UNALLOCATED CONTINGENCY	\$10,461,912	\$27,403,164	N/A	N/A	N/A	N/A	N/A	N/A
100 FINANCE CHARGES	-	-	-	-	-	-	-	-
<b>Total Project Cost (10 - 100)</b>	<b>\$126,685,155</b>	<b>\$311,458,206</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

**Table 6. Segment 1 using Option 1 for Build Alternatives (2025\$)**

SCC Category	Street-Level (At-Grade)		Elevated		Cut-and-Cover		Tunnel	
	BRT	LRT	BRT	LRT	BRT	LRT	BRT	LRT
10 GUIDEWAY & TRACK ELEMENTS	\$4,176,315	\$26,254,943	N/A	N/A	N/A	N/A	N/A	N/A
20 STATIONS, STOPS, TERMINALS, INTERMODAL	\$2,013,440	\$11,325,600	N/A	N/A	N/A	N/A	N/A	N/A
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	\$1,978,834	\$29,729,700	N/A	N/A	N/A	N/A	N/A	N/A
40 SITEWORK & SPECIAL CONDITIONS	\$56,196,202	\$64,704,631	N/A	N/A	N/A	N/A	N/A	N/A
50 SYSTEMS	\$3,371,726	\$32,062,459	N/A	N/A	N/A	N/A	N/A	N/A
60 ROW, LAND, EXISTING IMPROVEMENTS	\$4,202,145	\$4,708,138	N/A	N/A	N/A	N/A	N/A	N/A
70 VEHICLES	\$8,147,949	\$35,072,879	N/A	N/A	N/A	N/A	N/A	N/A
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	\$21,782,254	\$57,626,217	N/A	N/A	N/A	N/A	N/A	N/A
90 UNALLOCATED CONTINGENCY	\$9,064,729	\$25,332,966	N/A	N/A	N/A	N/A	N/A	N/A
100 FINANCE CHARGES	-	-	-	-	-	-	-	-
<b>Total Project Cost (10 - 100)</b>	<b>\$110,933,593</b>	<b>\$286,817,533</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>



**Table 7. Segment 2 Primary for Build Alternatives (2025\$)**

SCC Category	Street-Level (At-Grade)		Elevated		Cut-and-Cover		Tunnel	
	BRT	LRT	BRT	LRT	BRT	LRT	BRT	LRT
10 GUIDEWAY & TRACK ELEMENTS	\$47,390,793	\$85,917,181	\$235,035,143	\$251,379,557	\$404,049,274	\$420,393,688	\$710,155,074	\$726,499,488
20 STATIONS, STOPS, TERMINALS, INTERMODAL	\$3,020,160	\$16,988,400	\$59,459,400	\$59,459,400	\$294,843,120	\$294,843,120	\$294,843,120	\$294,843,120
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	\$1,978,834	\$29,729,700	\$3,841,266	\$7,707,700	\$3,841,266	\$7,707,700	\$3,841,266	\$7,707,700
40 SITEWORK & SPECIAL CONDITIONS	\$55,583,842	\$83,466,199	\$50,461,467	\$56,805,672	\$165,228,948	\$171,573,154	\$118,703,753	\$125,047,958
50 SYSTEMS	\$5,056,487	\$60,145,228	\$3,483,409	\$43,712,240	\$3,483,409	\$43,712,240	\$2,960,386	\$43,189,218
60 ROW, LAND, EXISTING IMPROVEMENTS	\$26,396,388	\$26,902,381	\$12,929,385	\$13,435,378	\$1,517,979	\$2,023,972	\$1,517,979	\$2,023,972
70 VEHICLES	\$8,147,949	\$35,072,879	\$15,734,117	\$9,061,841	\$15,734,117	\$9,061,841	\$15,734,117	\$9,061,841
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	\$41,724,162	\$35,072,879	\$106,150,128	\$122,708,363	\$246,008,257	\$262,566,492	\$317,498,186	\$334,056,421
90 UNALLOCATED CONTINGENCY	\$16,617,640	\$96,023,267	\$42,650,858	\$47,020,852	\$94,139,257	\$99,650,392	\$121,041,390	\$126,552,525
100 FINANCE CHARGES	-	-	-	-	-	-	-	-
<b>Total Project Cost (10 - 100)</b>	<b>\$205,916,255</b>	<b>\$469,318,113</b>	<b>\$529,745,172</b>	<b>\$611,291,003</b>	<b>\$1,228,845,627</b>	<b>\$1,311,532,599</b>	<b>\$1,586,295,272</b>	<b>\$1,668,982,243</b>

**Table 8. Segment 2 using Option 1 for Build Alternatives (2025\$)**

SCC Category	Street-Level (At-Grade)		Elevated		Cut-and-Cover		Tunnel	
	BRT	LRT	BRT	LRT	BRT	LRT	BRT	LRT
10 GUIDEWAY & TRACK ELEMENTS	\$52,291,475	\$87,640,088	\$202,996,279	\$217,577,360	\$348,907,759	\$363,488,840	\$613,171,759	\$627,752,840
20 STATIONS, STOPS, TERMINALS, INTERMODAL	\$3,020,160	\$16,988,400	\$59,459,400	\$59,459,400	\$294,843,120	\$294,843,120	\$294,843,120	\$294,843,120
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	\$1,978,834	\$29,729,700	\$3,841,266	\$7,707,700	\$3,841,266	\$7,707,700	\$3,841,266	\$7,707,700
40 SITEWORK & SPECIAL CONDITIONS	\$58,882,569	\$88,687,435	\$44,663,304	\$50,261,179	\$147,335,826	\$152,933,701	\$107,298,486	\$112,896,361
50 SYSTEMS	\$4,683,765	\$48,638,733	\$3,453,522	\$38,176,353	\$3,453,522	\$38,176,353	\$2,930,499	\$37,653,330
60 ROW, LAND, EXISTING IMPROVEMENTS	\$41,998,681	\$42,504,674	\$12,929,385	\$13,435,378	\$1,517,979	\$2,023,972	\$1,517,979	\$2,023,972
70 VEHICLES	\$8,147,949	\$35,072,879	\$15,734,117	\$9,061,841	\$15,734,117	\$9,061,841	\$15,734,117	\$9,061,841
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	\$43,884,026	\$94,764,233	\$95,700,317	\$110,046,537	\$225,845,259	\$240,191,479	\$287,578,859	\$301,925,079
90 UNALLOCATED CONTINGENCY	\$17,435,679	\$33,191,746	\$38,718,524	\$42,256,123	\$86,551,787	\$91,230,526	\$109,782,549	\$114,461,288
100 FINANCE CHARGES								
<b>Total Project Cost (10 - 100)</b>	<b>\$232,323,137</b>	<b>\$477,217,887</b>	<b>\$477,496,114</b>	<b>\$547,981,871</b>	<b>\$1,128,030,634</b>	<b>\$1,199,657,532</b>	<b>\$1,436,698,634</b>	<b>\$1,508,325,531</b>

**Table 9. Segment 3 using Build Alternative 1 (Trinity) Primary (2025\$)**

SCC Category	Street-Level (At-Grade)		Elevated		Cut-and-Cover		Tunnel	
	BRT	LRT	BRT	LRT	BRT	LRT	BRT	LRT
10 GUIDEWAY & TRACK ELEMENTS	\$130,884,611	\$163,305,926	\$371,132,991	\$388,751,220	\$412,927,601	\$437,411,975	\$828,416,675	\$846,034,904
20 STATIONS, STOPS, TERMINALS, INTERMODAL	\$20,653,490	\$53,010,100	\$138,738,600	\$138,738,600	\$512,908,110	\$520,663,000	\$687,967,280	\$670,910,240
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	\$1,978,834	\$29,729,700	\$2,444,442	\$24,224,200	\$2,444,442	\$24,224,200	\$2,444,442	\$23,623,600
40 SITEWORK & SPECIAL CONDITIONS	\$87,223,868	\$118,806,423	\$84,088,779	\$93,335,051	\$196,847,607	\$207,718,101	\$186,200,378	\$190,600,865
50 SYSTEMS	\$10,754,365	\$54,130,469	\$7,923,201	\$54,836,067	\$8,332,181	\$55,257,917	\$6,249,529	\$51,844,319
60 ROW, LAND, EXISTING IMPROVEMENTS	\$24,215,558	\$24,721,551	\$18,047,504	\$18,553,497	\$1,517,979	\$2,023,972	\$1,517,979	\$1,973,791
70 VEHICLES	\$8,147,949	\$35,072,879	\$10,012,620	\$28,480,073	\$10,012,620	\$28,480,073	\$10,012,620	\$27,773,955
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	\$79,303,248	\$134,780,945	\$175,392,379	\$208,249,213	\$316,470,801	\$353,814,252	\$475,926,445	\$496,168,818
90 UNALLOCATED CONTINGENCY	\$30,850,555	\$54,554,984	\$68,705,197	\$81,020,902	\$120,140,988	\$136,853,614	\$180,145,203	\$189,301,121
100 FINANCE CHARGES	-	-	-	-	-	-	-	-
<b>Total Project Cost (10 - 100)</b>	<b>\$394,012,479</b>	<b>\$668,112,977</b>	<b>\$876,485,712</b>	<b>\$1,036,188,822</b>	<b>\$1,581,602,329</b>	<b>\$1,766,447,104</b>	<b>\$2,378,880,550</b>	<b>\$2,477,255,540</b>

**Table 10. Segment 3 using Build Alternative 1 (Trinity) Option 1 (2025\$)**

SCC Category	Street-Level (At-Grade)		Elevated		Cut-and-Cover		Tunnel	
	BRT	LRT	BRT	LRT	BRT	LRT	BRT	LRT
10 GUIDEWAY & TRACK ELEMENTS	\$150,616,166	\$179,517,547	\$402,254,481	\$416,500,513	\$445,688,157	\$470,083,185	N/A	N/A
20 STATIONS, STOPS, TERMINALS, INTERMODAL	\$35,596,990	\$67,953,600	\$158,558,400	\$158,558,400	\$513,914,830	\$526,325,800	N/A	N/A
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	\$1,978,834	\$29,729,700	\$2,444,442	\$24,224,200	\$2,444,442	\$24,224,200	N/A	N/A
40 SITEWORK & SPECIAL CONDITIONS	\$77,858,668	\$112,794,378	\$90,133,315	\$99,118,182	\$200,215,196	\$211,704,220	N/A	N/A
50 SYSTEMS	\$11,689,128	\$56,879,287	\$8,745,880	\$56,528,115	\$9,154,860	\$56,937,095	N/A	N/A
60 ROW, LAND, EXISTING IMPROVEMENTS	\$25,328,743	\$25,834,736	\$24,917,623	\$25,423,616	\$1,517,979	\$2,023,972	N/A	N/A
70 VEHICLES	\$8,147,949	\$35,072,879	\$10,012,620	\$28,480,073	\$10,012,620	\$28,480,073	N/A	N/A
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	\$86,550,762	\$142,483,044	\$193,399,182	\$225,498,203	\$326,945,623	\$365,961,377	N/A	N/A
90 UNALLOCATED CONTINGENCY	\$33,595,519	\$30,578,011	\$76,168,288	\$87,511,812	\$124,082,733	\$141,454,285	N/A	N/A
100 FINANCE CHARGES	-	-	-	-	-	-	-	-
<b>Total Project Cost (10 - 100)</b>	<b>\$431,362,758</b>	<b>\$680,843,181</b>	<b>\$966,634,232</b>	<b>\$1,121,843,113</b>	<b>\$1,633,976,440</b>	<b>\$1,827,194,206</b>	<b>N/A</b>	<b>N/A</b>

**Table 11. Segment 3 using Build Alternative 1 (Trinity) Option 2 (2025\$)**

SCC Category	Street-Level (At-Grade)		Elevated		Cut-and-Cover		Tunnel	
	BRT	LRT	BRT	LRT	BRT	LRT	BRT	LRT
10 GUIDEWAY & TRACK ELEMENTS	\$131,233,345	\$165,468,078	\$376,191,759	\$391,307,345	\$421,634,156	\$446,396,951	\$843,729,830	\$861,626,480
20 STATIONS, STOPS, TERMINALS, INTERMODAL	\$25,687,090	\$28,314,000	\$138,738,600	\$138,738,600	\$512,908,110	\$520,663,000	\$687,967,280	\$687,967,280
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	\$1,978,834	\$29,729,700	\$2,444,442	\$24,224,200	\$2,444,442	\$24,224,200	\$2,444,442	\$38,538,500
40 SITEWORK & SPECIAL CONDITIONS	\$89,768,435	\$124,083,017	\$85,116,560	\$94,171,976	\$199,664,404	\$210,663,250	\$188,138,872	\$199,091,873
50 SYSTEMS	\$16,067,000	\$58,909,243	\$8,241,734	\$56,023,968	\$8,532,739	\$56,432,948	\$6,254,248	\$54,036,483
60 ROW, LAND, EXISTING IMPROVEMENTS	\$45,383,774	\$45,889,767	\$24,732,936	\$25,238,929	\$1,517,979	\$2,023,972	\$1,517,979	\$2,023,972
70 VEHICLES	\$8,147,949	\$35,072,879	\$10,012,620	\$28,480,073	\$10,012,620	\$28,480,073	\$10,012,620	\$28,480,073
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	\$82,981,894	\$145,991,129	\$179,158,601	\$211,512,045	\$319,706,149	\$357,430,771	\$480,688,539	\$518,283,307
90 UNALLOCATED CONTINGENCY	\$32,243,826	\$44,896,273	\$70,790,994	\$82,248,728	\$121,358,471	\$138,223,355	\$181,937,210	\$197,688,784
100 FINANCE CHARGES	-	-	-	-	-	-	-	-
<b>Total Project Cost (10 - 100)</b>	<b>\$433,492,146</b>	<b>\$678,354,085</b>	<b>\$895,428,245</b>	<b>\$1,051,945,863</b>	<b>\$1,597,779,069</b>	<b>\$1,784,538,520</b>	<b>\$2,402,691,020</b>	<b>\$2,587,736,751</b>



**Table 12. Segment 3 using Build Alternative 2 (South 1st Street) (2025\$)**

SCC Category	Street-Level (At-Grade)		Elevated		Cut-and-Cover		Tunnel	
	BRT	LRT	BRT	LRT	BRT	LRT	BRT	LRT
10 GUIDEWAY & TRACK ELEMENTS	\$170,860,775	\$258,088,726	\$421,148,455	\$480,489,526	\$400,179,243	\$452,383,831	\$861,760,363	\$905,420,415
20 STATIONS, STOPS, TERMINALS, INTERMODAL	\$5,033,600	\$28,314,000	\$118,918,800	\$118,918,800	\$492,411,920	\$497,068,000	\$589,686,240	\$589,686,240
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	\$5,470,894	\$13,213,200	\$698,412	\$13,213,200	\$698,412	\$13,213,200	\$698,412	\$13,213,200
40 SITEWORK & SPECIAL CONDITIONS	\$73,382,961	\$105,012,513	\$63,180,606	\$70,022,941	\$160,769,551	\$169,470,939	\$163,082,582	\$165,482,859
50 SYSTEMS	\$9,123,683	\$47,209,269	\$7,146,926	\$46,524,049	\$7,146,926	\$46,838,649	\$5,368,649	\$45,060,373
60 ROW, LAND, EXISTING IMPROVEMENTS	\$11,728,917	\$9,641,696	\$708,390	\$1,416,780	\$505,993	\$1,214,383	\$505,993	\$1,214,383
70 VEHICLES	\$22,526,683	\$15,587,946	\$2,860,749	\$15,534,585	\$2,860,749	\$15,534,585	\$2,860,749	\$15,534,585
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	\$38,232,429	\$67,019,537	\$117,527,865	\$142,443,273	\$249,448,629	\$278,697,035	\$403,818,808	\$427,685,487
90 UNALLOCATED CONTINGENCY	\$15,295,161	\$21,004,220	\$44,554,248	\$55,050,717	\$94,176,665	\$106,323,909	\$152,267,185	\$162,389,250
100 FINANCE CHARGES	-	-	-	-	-	-	-	-
<b>Total Project Cost (10 - 100)</b>	<b>\$351,655,103</b>	<b>\$565,091,106</b>	<b>\$776,744,451</b>	<b>\$943,613,871</b>	<b>\$1,408,198,087</b>	<b>\$1,580,744,530</b>	<b>\$2,180,048,980</b>	<b>\$2,325,686,791</b>

**Table 13. Segment 3 using Build Alternative 2 (South 1st Street) Option 1 (2025\$)**

SCC Category	Street-Level (At-Grade)		Elevated		Cut-and-Cover		Tunnel	
	BRT	LRT	BRT	LRT	BRT	LRT	BRT	LRT
10 GUIDEWAY & TRACK ELEMENTS	\$304,421,901	\$401,921,216	\$435,711,171	\$498,448,782	\$412,576,820	\$466,946,547	\$874,157,940	\$919,983,131
20 STATIONS, STOPS, TERMINALS, INTERMODAL	\$21,660,210	\$58,672,900	\$118,918,800	\$118,918,800	\$492,411,920	\$497,068,000	\$589,686,240	\$589,686,240
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	\$5,470,894	\$13,213,200	\$698,412	\$13,213,200	\$698,412	\$13,213,200	\$698,412	\$13,213,200
40 SITEWORK & SPECIAL CONDITIONS	\$141,450,740	\$171,129,867	\$62,897,740	\$69,740,074	\$161,004,243	\$169,705,631	\$158,246,739	\$165,482,859
50 SYSTEMS	\$11,829,338	\$53,378,575	\$8,088,366	\$47,465,490	\$8,088,366	\$47,780,090	\$5,368,649	\$45,060,373
60 ROW, LAND, EXISTING IMPROVEMENTS	\$27,493,127	\$25,405,907	\$13,594,766	\$14,303,156	\$505,993	\$1,214,383	\$505,993	\$1,214,383
70 VEHICLES	\$22,526,683	\$15,587,946	\$2,860,749	\$15,534,585	\$2,860,749	\$15,534,585	\$2,860,749	\$15,534,585
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	\$95,802,985	\$145,973,263	\$121,562,096	\$146,477,504	\$249,773,197	\$279,021,602	\$402,484,302	\$427,685,487
90 UNALLOCATED CONTINGENCY	\$39,352,427	\$38,268,152	\$47,360,993	\$56,568,824	\$94,298,802	\$106,446,046	\$151,765,002	\$162,389,250
100 FINANCE CHARGES	-	-	-	-	-	-	-	-
<b>Total Project Cost (10 - 100)</b>	<b>\$670,008,305</b>	<b>\$923,551,026</b>	<b>\$811,693,093</b>	<b>\$980,670,415</b>	<b>\$1,422,218,501</b>	<b>\$1,596,930,084</b>	<b>\$2,185,774,025</b>	<b>\$2,340,249,507</b>

**Table 14. Segment 4 for Build Alternatives (2025\$)**

SCC Category	Street-Level (At-Grade)		Elevated		Cut-and-Cover		Tunnel	
	BRT	LRT	BRT	LRT	BRT	LRT	BRT	LRT
10 GUIDEWAY & TRACK ELEMENTS	\$20,095,547	\$61,081,824	N/A	N/A	N/A	N/A	N/A	N/A
20 STATIONS, STOPS, TERMINALS, INTERMODAL	\$5,709,990	\$32,089,200	N/A	N/A	N/A	N/A	N/A	N/A
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	\$1,978,834	\$29,729,700	N/A	N/A	N/A	N/A	N/A	N/A
40 SITEWORK & SPECIAL CONDITIONS	\$127,046,004	\$147,780,767	N/A	N/A	N/A	N/A	N/A	N/A
50 SYSTEMS	\$8,841,739	\$110,610,214	N/A	N/A	N/A	N/A	N/A	N/A
60 ROW, LAND, EXISTING IMPROVEMENTS	\$1,556,687	\$2,062,680	N/A	N/A	N/A	N/A	N/A	N/A
70 VEHICLES	\$8,147,949	\$35,072,879	N/A	N/A	N/A	N/A	N/A	N/A
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	\$48,288,396	\$150,110,781	N/A	N/A	N/A	N/A	N/A	N/A
90 UNALLOCATED CONTINGENCY	\$19,103,815	\$60,361,092	N/A	N/A	N/A	N/A	N/A	N/A
100 FINANCE CHARGES	-	-	-	-	-	-	-	-
<b>Total Project Cost (10 - 100)</b>	<b>\$240,768,961</b>	<b>\$628,899,137</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

**Table 15. Segment 5 for Build Alternatives (2025\$)**

SCC Category	At Grade		Elevated		Cut-and-Cover		Tunnel	
	BRT	LRT	BRT	LRT	BRT	LRT	BRT	LRT
10 GUIDEWAY & TRACK ELEMENTS	\$81,791,674	\$104,155,802	N/A	N/A	N/A	N/A	N/A	N/A
20 STATIONS, STOPS, TERMINALS, INTERMODAL	\$14,943,500	\$20,920,900	N/A	N/A	N/A	N/A	N/A	N/A
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	\$1,978,834	\$29,729,700	N/A	N/A	N/A	N/A	N/A	N/A
40 SITEWORK & SPECIAL CONDITIONS	\$11,676,267	\$21,950,520	N/A	N/A	N/A	N/A	N/A	N/A
50 SYSTEMS	\$1,791,254	\$42,271,229	N/A	N/A	N/A	N/A	N/A	N/A
60 ROW, LAND, EXISTING IMPROVEMENTS	\$17,508,558	\$18,014,551	N/A	N/A	N/A	N/A	N/A	N/A
70 VEHICLES	\$8,147,949	\$35,072,879	N/A	N/A	N/A	N/A	N/A	N/A
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	\$38,822,876	\$77,566,037	N/A	N/A	N/A	N/A	N/A	N/A
90 UNALLOCATED CONTINGENCY	\$15,518,790	\$32,885,087	N/A	N/A	N/A	N/A	N/A	N/A
100 FINANCE CHARGES	-	-	-	-	-	-	-	-
<b>Total Project Cost (10 - 100)</b>	<b>\$192,179,703</b>	<b>\$382,566,705</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>