

DRAFT TECHNICAL MEMORANDUM

To: April Geruso,
City of Austin Planning Department

From: Darin Smith and Luke Foelsch

Subject: South Central Waterfront Bonus Density Program Support;
EPS #231113

Date: June 28, 2024

The Economics of Land Use



Economic & Planning Systems, Inc. (EPS) was retained by the City of Austin ("City") to evaluate in-kind community benefit contribution options for a potential density bonus program for the South Central Waterfront.

The City is exploring a density program through which a developer must provide a combination of in-lieu fee payments and in-kind community benefits (generally, on-site design or programming features) in exchange for a right to build to higher density than allowed under base zoning. This memorandum presents an analysis of several community benefit items of interest to the City as potential in-kind options that developers may provide. The total "lifetime" cost to the developer for each of the items is estimated to determine the value to be credited toward the developer's satisfaction of density bonus requirements. Items include the provision of affordable housing, publicly accessible open space, and specific uses the City desires to encourage in the South Central Waterfront.

This memorandum is structured with the primary findings of value estimates for each item presented first followed by a description of the methodology utilized to estimate values for each of the items analyzed.

Background and Results

The community benefit items that are analyzed herein, per City of Austin Planning Department direction, include the following:

- **Affordable Housing priced at 60 percent Median Family Income (MFI).** Below-market rate housing deed-restricted at 60 percent of Median Family Income (MFI).
- **Public Open Space.** Publicly accessible open space that is built and maintained by a private party.

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- **Child Care and Adult Care Services.** A restrictive covenant on built space for the operation and maintenance of either child care or adult care services for a period of at least ten years.
- **Affordable Child Care.** A restrictive covenant on built space for the operation and maintenance of child care service provided at no cost to the operator for a period of at least 20 years.
- **Cultural Uses.** A restrictive covenant for operation and maintenance of uses that are eligible to participate in the City of Austin Core Cultural Funding Program for a period of at least ten years.
- **Live Music Venue.** The provision of a live music venue facility that developer applicant must ensure the continuation of for at least ten years.
- **Grocery Uses.** A restrictive covenant ensuring grocery store usage on the building's ground floor, of no less than 16,000 gross square feet, for a period of at least ten years.

This analysis has yielded the value estimates for each of the items shown in **Table 1**. These values are intended to be administered based on the particular parameters of a given project, with the resulting value to be credited toward the developer's satisfaction of density bonus requirements.

Table 1 Summary of Valuation Results

Item	Credit toward Density Bonus Requirements	
	Amount	Unit
<u>Affordable Housing at 60% MFI</u>		
Studio	\$140,968	per DU
1-Bedroom	\$198,063	per DU
2-Bedroom	\$345,600	per DU
3-Bedroom	\$1,152,253	per DU
Public Open Spaces	\$135	per Sq. Ft.
<u>Child Care / Adult Care Services</u>		
Provided for No Rent for 10 Years	\$333	per Sq. Ft.
Provided for Half Rent for 10 Years	\$166	per Sq. Ft.
Affordable Child Care (No Rent for 20 Years)	\$600	per Sq. Ft.
Cultural Uses (Discounted Rent for 10 Years)	\$190	per Sq. Ft.
Live Music Venue (Discounted Rent for 10 Years)	\$44	per Sq. Ft.
Grocery Use (Discounted Rent for 10 Years)	\$91	per Sq. Ft.

Source: Economic & Planning Systems

Affordable Housing at 60 Percent MFI

The in-kind community benefit value of providing affordable housing limited to 60 percent of MFI is calculated based on the loss in capitalized value per unit as shown in **Table 2**.

Table 2 Density Bonus Credit Calculation for Affordable Housing at 60 Percent MFI

Unit Type	Market Rate Rent/ Unit/Mo. ¹	60% MFI Affordable Rent/ Unit/Mo. ²	Diff. per Month	Diff. per Year	Loss in Capitalized Value per Unit ³
<i>Formula</i>	<i>a</i>	<i>b</i>	<i>c = a - b</i>	<i>f = e * 12</i>	<i>= f / 0.0475</i>
Studio	\$1,785	\$1,227	\$558	\$6,696	\$140,968
1-Bedroom	\$2,098	\$1,314	\$784	\$9,408	\$198,063
2-Bedroom	\$2,946	\$1,578	\$1,368	\$16,416	\$345,600
3-Bedroom	\$6,383	\$1,822	\$4,561	\$54,732	\$1,152,253

[1] CoStar Group data for average 2024 Year-To-Date (as of February 2024) market effective rents for apartments built since 2010 or currently under construction in the CoStar Multifamily Submarkets directly south of Lady Bird Lake (Bouldin Creek, Soco, Travis Heights, and Zilker).

[2] Maximum Austin 2023 rents by number of bedrooms for 60% Area Median Family Income.

[3] Based on Capitalization Rate of 4.75% per IRR Viewpoint 2023 data for Downtown Austin Class A Urban Multifamily.

Source: Integra Realty Resources; CoStar; TDHCA; Economic & Planning Systems.

The amount of rental revenue lost is calculated as the difference between achievable market rate rents per unit and the maximum allowable rents at 60 percent MFI. Market rate rents are based on CoStar Group data for market effective rents for new multifamily properties (built since 2010) located in the area immediately south of Lady Bird Lake. The difference between these market achievable rents and the allowable rents at 60 percent MFI is presented on an annual basis, and this difference is capitalized using a capitalization rate of 4.75 percent to estimate the overall impact on unit values. The resulting loss in capitalized value per unit represents the loss in overall development value a developer would realize on a per-unit basis and therefore is suggested as the amount by which their density bonus obligations would be credited for each such affordable unit provided on-site. As shown, this ranges from a credit of roughly \$140,000 in obligation for each studio unit provided at 60 percent MFI to a credit of \$1.15 million for each three-bedroom affordable unit provided.

Privately-Owned Public Open Space

Privately-owned publicly accessible open space assumes the construction and ongoing maintenance of open space that would be provided by a developer for use by the public. **Table 3** estimates the total cost to the developer of providing this community benefit.

Table 3 Density Bonus Credit Calculation for Privately-Owned Public Open Space

Item	Formula	Amount per Acre	Amount per Square Foot
Park Development Cost ¹	<i>a</i>	\$4,705,959	\$108
Open Space Maintenance Cost ²	<i>b</i>	\$56,428	\$1.30
Capitalization Rate ³	<i>c</i>	4.75%	4.75%
Loss in Capitalized Value	$d = b / c$	\$1,187,955	\$27
Total Loss in Value	$= a + d$	\$5,893,915	\$135

[1] Based on 2016 per-acre cost for Republic Square Park, inflated to 2024 \$ using the average of ENR's Construction Cost Index and Building Cost Index for Dallas.

[2] Annual maintenance cost estimate (provided June 2022) for plaza/streetscapes per City of Austin Parks and Recreation Department. Inflated to 2024 \$ in same manner as described in **Footnote 1**.

[3] Based on Capitalization Rate of 4.75% per IRR Viewpoint 2023 data for Downtown Austin Class A Urban Multifamily.

Source: Engineering News Record; City of Austin Parks and Recreation Department; Integra Realty Resources Viewpoint 2023; Economic & Planning Systems

The provision of open space on part of a parcel does not necessarily affect the amount of building square footage that a developer can build, because the Floor Area Ratio allowable will be calculated on the entire parcel size prior to the provision of such open space. Therefore, the estimated loss in value to the developer consists of the cost to construct the open space and the ongoing cost to maintain it. Construction cost is estimated at about \$4.7 million per acre based on the 2016 cost to develop Republic Square Park in downtown Austin (then \$3.2 million per acre), inflated to a 2024 dollar value using an average of Engineering News Record's (ENR) Construction Cost Index and Building Cost Index for the Dallas area, the nearest region for which such data is published. Ongoing maintenance cost is estimated at \$55,000 per acre annually based on a 2022 City of Austin Parks and Recreation Department estimate to maintain plaza/streetscape facilities, inflated to a 2024 dollar value in the same manner as described for the construction cost. The maintenance cost, since it will be an ongoing annual cost, is divided by a capitalization rate of 4.75 percent to derive the loss in capitalized value to the development from maintaining the open space in perpetuity. This value, \$1.2 million, is added to the development cost to arrive at the total loss in value to provide this community benefit, about \$5.9 million per acre or \$135 per square foot of publicly accessible open space created.

Specified Use Types

This section details the community benefit value estimates for the specific uses that the City is considering as eligible to meet bonus density obligations in the South Central Waterfront. **Table 4** displays the calculations used to arrive at the loss in developer value for each use on a per-square foot basis. Uses include child care and adult care services, affordable childcare, cultural uses, live music venues, and grocery uses.

Table 4 Density Bonus Credit Calculation for Specified Use Types with Discounted Rents

Item	Childcare/Adultcare		Affordable Childcare	Cultural Use	Live Music Venue	Grocery
	No Rent	Half Rent				
Market Rate Rent/SqFt ¹	\$38.50	\$38.50	\$38.50	\$38.50	\$38.50	\$38.50
<u>Discounted Rent/SqFt²</u>	<u>\$0.00</u>	<u>\$19.25</u>	<u>\$0.00</u>	<u>\$16.50</u>	<u>\$33.43</u>	<u>\$28.00</u>
Amount of Discount/SqFt	\$38.50	\$19.25	\$38.50	\$22.00	\$5.07	\$10.50
Discounts/SqFt by Year						
Year 1	\$38.50	\$19.25	\$38.50	\$22.00	\$5.07	\$10.50
Year 2	\$39.66	\$19.83	\$39.66	\$22.66	\$5.22	\$10.82
Year 3	\$40.84	\$20.42	\$40.84	\$23.34	\$5.38	\$11.14
Year 4	\$42.07	\$21.03	\$42.07	\$24.04	\$5.54	\$11.47
Year 5	\$43.33	\$21.67	\$43.33	\$24.76	\$5.71	\$11.82
Year 6	\$44.63	\$22.32	\$44.63	\$25.50	\$5.88	\$12.17
Year 7	\$45.97	\$22.99	\$45.97	\$26.27	\$6.05	\$12.54
Year 8	\$47.35	\$23.68	\$47.35	\$27.06	\$6.24	\$12.91
Year 9	\$48.77	\$24.39	\$48.77	\$27.87	\$6.42	\$13.30
Year 10	\$50.23	\$25.12	\$50.23	\$28.71	\$6.62	\$13.70
Year 11	-	-	\$51.74	-	-	-
Year 12	-	-	\$53.29	-	-	-
Year 13	-	-	\$54.89	-	-	-
Year 14	-	-	\$56.54	-	-	-
Year 15	-	-	\$58.23	-	-	-
Year 16	-	-	\$59.98	-	-	-
Year 17	-	-	\$61.78	-	-	-
Year 18	-	-	\$63.63	-	-	-
Year 19	-	-	\$65.54	-	-	-
Year 20	-	-	\$67.51	-	-	-
Cumulative Discount/SqFt	\$441.36	\$220.68	\$1,034.51	\$252.21	\$58.12	\$120.37
NPV of Cumulative Discount/SqFt³	\$332.54	\$166.27	\$600.45	\$190.02	\$43.79	\$90.69

[1] Average annual market NNN (Triple Net) rent from CoStar Group data for Retail developments built since 2010 in Downtown Austin CBD (data retrieved January 2024).

[2] Discounted rents reflect CoStar Group data for Austin leases that represent similar uses to those contemplated for each category.

[3] Estimated using rent difference per year, assuming 3% annual inflation and a 5.25% discount rate.

Estimates for all uses shown in **4** are calculated by deriving the difference in rent revenue for each specific use as compared to achievable market rate rents (assuming retail use), and calculating the net present value (NPV) of the loss in rent revenue over the life of the restrictive covenants for each use (which is ten years for all uses except affordable childcare, which is twenty years). The market rate rent assumption is \$38.50 per square foot per year, which is the average Triple Net (wherein property taxes, insurance, and maintenance costs are paid by the tenant, not the building owner) rent per CoStar Group data for retail developments built since 2010 in Downtown Austin's Central Business District.

The discounted rent assumptions for the specified uses are based primarily on CoStar Group data for the Austin area. For childcare/adult care uses, results are presented for rents that are discounted to either no cost or to half of market rent, and the affordable childcare use is assumed to be provided at no cost to the tenant. Cultural uses encompass a wide range of potential use types, and an estimate of \$16.50 per square foot per year is used, slightly below half of the market rate rent level, based on CoStar Group lease data for a particular Austin tenant that has received grant funding from the Austin Core Cultural Funding Program. EPS believes this tenant is representative of the types of uses contemplated to be eligible as a cultural use. The discounted rent assumption used for live music venues is based on lease data for an active Austin music venue south of Lady Bird Lake, and the discounted rent for grocery uses is based on average rents for supermarkets built in the Austin area in 2010 or later.

The NPV of the resulting loss in potential rent revenue is derived using a three percent inflation rate and a 5.25 percent discount rate over a period of 20 years for affordable childcare and ten years for all other uses. This NPV represents the loss in value to the developer for providing these uses and equals the amount of density bonus credit for each square foot of the specified uses provided. They range from roughly \$44 per square foot for live music venues to \$600 per square foot for affordable childcare (provided at no cost to the operator).



City Of Austin Planning Dept
South Central Waterfront
Density Bonus Assessment

May 2024

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- II. Scope of Work
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Background

The City of Austin Planning Department is working to craft a density bonus program to encourage developers to provide community benefits in exchange for entitlement incentives within the South-Central Waterfront (“SCW”) planning area. The City sought third party review of the current Excel-based tool and underlying assumptions. Specifically, the City sought to understand:

- Are the methodology and mechanics of the SCW density bonus scenario tool functional and easy to use?
- Is this density bonus program sufficiently calibrated to motivate a developer to choose this program over a PUD process?

Stress Test Methodology

- Determine the value of incentive density granted through the density bonus program by netting the incremental project value for a participating project from one that completes a project under by-right zoning.
- Test two development options for the SCW District – small-scale and large-scale
- Compare project performance metrics between by-right and density bonus projects to test feasibility and relative value:
 - Return on Cost
 - Levered Internal Rate of Return
 - Equity Multiple
 - Capitalized Project Value

Pro Forma Model Output

BD Program Capitalized Market Value	-	Total Development Costs	=	BD Program Value Generated
By-Right Capitalized Market Value	-	Total Development Costs	=	By-Right Capitalized Market Value
BD Program Value Generated	-	By-Right Capitalized Market Value	=	Value of Incentive Density

Development Scenarios

	Small Scale		Large Scale	
	By-Right (CS-1-V-NP)	Density Bonus Program	By-Right (CS-1-V-NP)	Density Bonus Program
Site Size	1.5 Acres		4 Acres	
GSF	191,233	524,825	509,872	1,373,957
Multifamily (GSF)	127,100	348,150	338,850	910,300 (2 buildings)
Retail (GSF)	3,630	10,000	9,680	30,000
Parking (spaces)**	60,503 (173)	166,675 (476)	161,342 (461)	433,657 (1239)
FAR	2.0*	8.0	2.0*	7.9

*Does not include parking area

** Above grade parking spots are 350 SF/Space

Bonus Fee in Lieu

Bonus Fee in Lieu-\$5 (Residential)/\$9 (Non-residential) / 5% of 3:1 FAR On-site Affordable Housing

Small Scale Development

Scenario	Fee	Aff. Units	Return on Cost	Equity Multiple	LIRR
By Right			5.3%	1.33	7.8%
Density Bonus	✓	✓	6.0%	1.73	16.2%
Threshold			Cap Rate + 1%	2.00	15.0%

Large Scale Development

Scenario	Fee	Aff. Units	Return on Cost	Equity Multiple	LIRR
By Right			5.4%	1.36	8.4%
Density Bonus	✓	✓	5.9%	1.69	15.4%
Threshold			Cap Rate + 1%	2.00	15.0%

- By-right projects do not meet any of the 3 performance metric thresholds.
- Adding bonus density results in a marginally feasible project; returns drop with each public benefit (on-site affordable units / bonus fee)
- The inclusion of on-site affordable housing impacts project returns considerably, having a greater impact on long-term returns.
- Based on the spread between the return metrics and thresholds, the projects have limited capacity to fund public benefits and remain viable, given current market conditions.

Improved Economy Sensitivity

Description

- Real estate markets across the country are struggling today, given high interest rates, construction costs, and operating costs.
- The Improved Economy Sensitivity analysis is intended to simulate an alternative, a more favorable real estate market, as the density bonus program should not be built only on a current economic snapshot in time.
- While the adjusted assumptions may not align directly with future economic conditions, they represent general reductions in costs and improved revenue generation typically seen in more favorable markets, but which could ultimately take many forms.

Key Metrics

Three key assumptions were altered in this sensitivity analysis:

- Capitalization rate decreased by 25bp to 4.75%
- Permanent interest rate is reduced by 50bp to 5.0%
- Operating costs grow at 2% annually (reduced from 3%)

Improved Economy

Bonus Fee in Lieu-\$5 (Residential)/\$9 (Non-residential) / 5% of 3:1 FAR On-site Affordable Housing

Small Scale Development

Scenario	Fee	Aff. Units	Return on Cost	Equity Multiple	LIRR
By Right			5.3%	1.46	10.3%
Density Bonus	✓	✓	6.2%	1.98	20.5%
Threshold			Cap Rate + 1%	2.00	15.0%

Large Scale Development

Scenario	Fee	Aff. Units	Return on Cost	Equity Multiple	LIRR
By Right			5.3%	1.50	11.2%
Density Bonus	✓	✓	6.1%	1.93	19.8%
Threshold			Cap Rate + 1%	2.00	15.0%

- By-right project does not meet any of the 3 performance metric thresholds.
- Adding bonus density results in a feasible project.
- Under improved market conditions the projects can fund public benefits and remain viable.
- The proposed fee structure (\$5/\$9/SF over 3:1 FAR) may be increased to provide additional public benefits without greatly impacting project viability and will likely endure changing market conditions.



Hayat Brown

Thank You

An aerial sketch of a city waterfront. A river flows through the center, flanked by green parks and walkways. On the right, a dense cluster of skyscrapers represents a city skyline. The background shows a vast, flat landscape under a blue sky with light clouds.

South Central Waterfront District Infrastructure Gap Analysis June 17, 2024

Economic Development/ Financial Services
with Hayat Brown LLC and Garza EMC, LLC

2016: South Central Waterfront (SCW) District



Vision Framework Plan (Adopted 2016, Updated 2020)

- **118 acres:**
 - 34 privately-owned parcels
 - 1 City-owned parcel
- **Build New Infrastructure :** expand street grid, add miles of sidewalks, chilled water, green infrastructure, stormwater system, and approx. 17 acres of parks, plazas, and trails, including boardwalk along Bouldin Creek
- **Promote Density:** add 6.4+ million sf of new residential, office, retail, and hotels by 2040

Multiple Sources Envisioned for Financial Toolkit

- **Private Funding:** Development Bonus Fees, Public Improvement District, Philanthropy (Conservancy)
- **Public Funding Sources:** Tax Increment Financing, Capital Improvement Plan (CIP), Parking, Affordable Housing Subsidies

Ordinance 20170216-034 Establishes SCW Advisory Board to provide continuity & communication among stakeholders & advocates and recommendations to Council on plan implementation

Infrastructure Hayat Brown 2024 Scope

Consultant Scope

- With significant public & private development planned:
 - How are needs of development / PUD applications coordinate
 - What is impact of Project Connect/ATP plans?
 - What is overlap with Capital Improvement Program – plans, funding, process?
- What is impact of Planning's Combining District and Density Bonus Program on planning?
- Any critical infrastructure missing/overlooked?
- What assumptions differ between the current revised infrastructure estimates and the 2016/2020 Framework update?

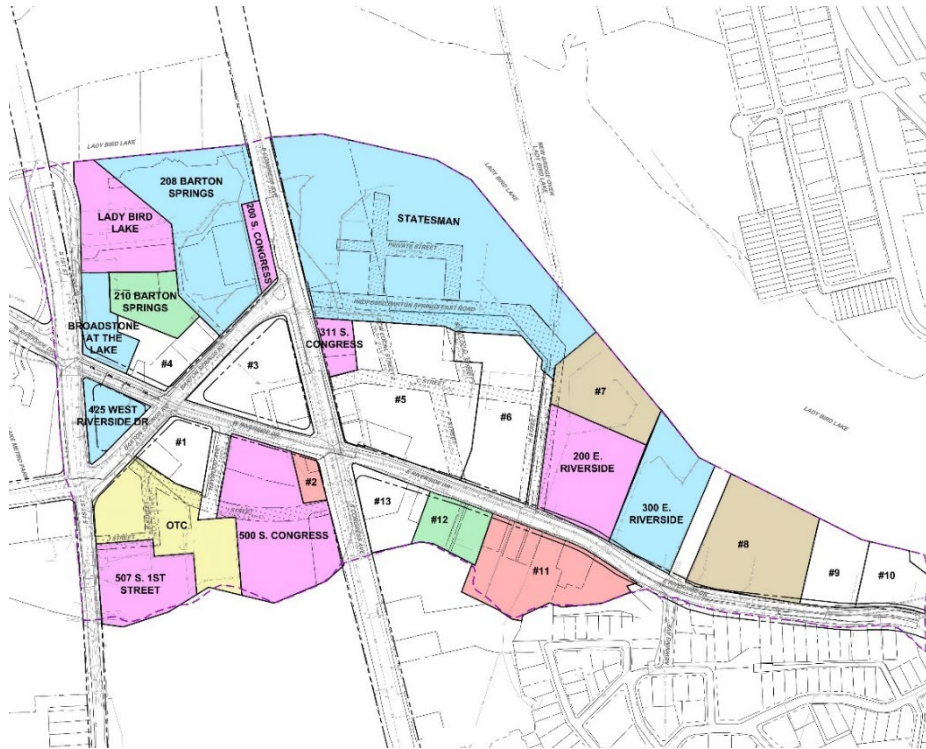
Internal Infrastructure Stakeholders Engaged:

- Transportation and Public Works
- Financial Services
- Watershed Protection
- Austin Energy
- Austin Water
- Capital Delivery Services



A rendering of the luxury apartments set to go up where the now empty Statesman headquarters building stands along the lakefront (Rendering by Skidmore, Owings & Merrill)

ANTICIPATED DEVELOPMENT PROGRAM



- The 2016 Vision Plan envisioned development of **approximately 6M sf of mixed-use development by 2040**
- **In 2024, at least 30M sf mixed-use development is expected to be delivered within 15 years.** This estimate is likely conservative.
- This projected development program reflects uses and square footage (SF) from:
 - Planned Unit Development (PUD) applications (approved and under review)
 - Combining District entitlements proposed by Planning Department through sub-districts

Project Site Data		Development Program					
Primary Address	Acres	Multifamily	Office	Hotel	Retail	Parking	Total GSF
	81.80	16,835,521	3,903,129	541,750	1,897,352	6,793,964	29,971,716
% of Total SF (Less Parking)		73%	17%	2%	8%		100%

- Adopted PUD/PDA
- PUD/PDA Cases in Review
- Recent development (< 10 years) No PUD/PDA
- Possible Future Redevelopment Sites
- Limited Redevelopment Potential
- Possible Project Connect Impact Sites

COMPARISON: VISION PLAN VS 2024 HARD-COST ESTIMATES

	Hard Costs		SCW Vision Hard Costs (Model)	
	Linear Feet (LF)	Total Hard Cost ¹	Linear Feet (LF)	Total Hard Cost ¹
WET UTILITIES		\$5,632,023		\$5,251,750
Total Water	8,100	1,567,238	7,598	1,569,750
Total Wastewater	4,573	\$1,160,035	7,598	\$2,070,500
Total Reclaimed	9,265	\$1,867,248	7,051	\$1,611,500
DRY UTILITIES		\$13,631,250		\$21,310,480
Electric	10,905	\$13,631,250	12,998	\$16,247,500
Gas		not included		\$949,750
Communications		not included		\$4,113,230
ROAD NETWORK		\$38,853,760		\$79,871,431
Roadway & Drainage Improvements ³	15,231	\$38,853,760	16,855	\$46,522,770
Streetscape Improvements		not included		\$30,708,277
Green Infrastructure/Rain Gardens		not included		\$2,640,384
TOTAL		\$37,906,498		\$106,433,661
DIRECT COMPARISON TOTAL² (excl. gas, communications, streetscape & rain gardens)		\$58,117,033		\$68,022,020

The ~\$10M difference in Total Cost Estimates between the 2016 Vision Plan and this 2024 analysis can be explained as:

- **Wastewater:** 2024 Estimate assumes existing 48" WW main has sufficient capacity for proposed improvements.
- **Roadway & Drainage:**
 - 2016 estimates assumed higher level of intervention (fully new street), thus a higher cost/SF.
 - 2024 Estimate assumes private roads in 305 South Congress (Statesman) PUD paid by private developers.

¹ Hard Costs do not account for soft costs or indirect costs.

² Direct Comparison Total excludes gas, communications, streetscape improvements and green infrastructure.

³ Roadway & Drainage include cost estimates for Stormwater lines, which were excluded from the Wet Utilities total.

COMPARISON: VISION PLAN VS 2024 INFRASTRUCTURE COST ESTIMATES

	VISION PLAN Escalated Total Costs (Slides)	VISION PLAN Hard Costs (Model)	VISION PLAN Escalated Total Costs ¹ (Model)	2024 ESTIMATE Hard Costs	2024 ESTIMATE Escalated Total Costs ¹
EXPECTED DEVELOPMENT					
Total development (GSF)	6M	6M		30M	
Time Horizon	30 years	30 years		15 years	
INFRASTRUCTURE	Vision Cost Estimates ⁵ (\$ in millions)	Cost Estimate (\$ in millions)	Cost Estimate (\$ in millions)	Cost Estimate (\$ in millions)	Cost Estimate (\$ in millions)
Electric (not including new substation)	\$38.1 M ²	\$16.2 M	\$38.3 M	\$13.6 M	\$26.4 M
Wet Utilities (incl reclaimed & stormwater)		\$5.3 M	\$11.8 M	\$5.6 M	\$13.3 M
Roadway & Drainage Improvements	\$83.4 M	\$46.5 M	\$109.6 M	\$38.9 M	\$91.5 M
Subtotal	\$121.5 M	\$68.0 M	\$159.7 M	\$58.1 M	\$131.2 M
Open space ⁴	\$93.7 M	\$85.3 M	\$85.3 M	Not included	Not included
Streetscape	\$56.3 M	\$30.7 M	\$72.3 M	Not included	Not included
Green Infrastructure/ Rain Gardens	\$5.5 M	\$2.6 M	\$6.2 M	Not included	Not included
Subtotal Additional	\$155.5 M	\$118.6 M	\$163.8 M		
TOTAL	\$277.0 M		\$323.5 M		

¹ Escalated Total Costs include 10% public costs, 12% soft costs, 12% miscellaneous, and 30% contingency (AIPP, Surveying, Testing, Inspections, Land / ROW Acquisition) and have been escalated at 5% annually to 2024.

² Initial cost estimates for dry utilities included gas and communications, which have been excluded in this analysis since they are directly paid for by the private sector.

³ Electric costs shown are for empty duct banks and do not include costs associated with pulling wires through the conduits.

⁴ Still under negotiation

⁵ Modified Framework 2020 estimates adjusted cost escalation on 11/2/2021.

INFRASTRUCTURE GAP ANALYSIS: KEY TAKEAWAYS

1. **Water**: Some water lines in Riverside and smaller roadways need to be upsized.
2. **Wastewater**: Some wastewater lines will need to be upsized yet not clear if existing 48" main in Riverside has adequate capacity for coming development.
3. **Stormwater**: Some existing stormwater lines need to be upsized and upgraded as SCW is fully built out by impervious cover standards. Portions are within the 100-year floodplain and already inundated, specifically along Bouldin Creek; targeted upgrades would relieve some of the current flooding.
4. **Reclaimed Water**: No reclaimed water mains exist in SCW today; however, an extension is planned near Riverside and South 1st to connect SCW to the system and existing line. All other roadways in SCW need to supply reclaimed water.
5. **Electric**. Cost estimates do not include transformers, switchgears, or similar infrastructure or larger system needs, including a substation.
6. **Roadways**. Road network is based on the Austin Strategic Mobility Plan (ASMP). Improvements and fees are subject to negotiation by project through Traffic Impact Analysis (TIA) and by the Street Impact Fees (SIF) process.

Additional Information

METHODOLOGY FOR PROJECTED UTILITY NEEDS

1. Created a base map of existing utilities and roadways based on information by combining data from various GIS databases, construction plans, development plans, etc. into a single location/plan as no single, comprehensive infrastructure database exists for the City of Austin.
2. Using the proposed development program, each utility system was assessed to develop estimated sizing requirements.
3. The estimated sizing requirements were compared to existing conditions by utility to create a plan showing where upsizing and/or new lines and roadways are needed. This plan is the estimated the infrastructure need / gap by utility system.
4. This calculation is limited to infrastructure (existing and needed) within the SCW District. Improvements / development activities outside SCW that impact the capacities of area utilities were not included in these calculations.

[illegible]

 PROPOSED WATER
 PROPOSED WASTEWATER
 PROPOSED STORM
 PROPOSED RECLAIMED WATER

EXISTING	DESCRIPTION
---	EXISTING R.O.W. LINE
==	PROPOSED R.O.W. LINE
- - -	ROAD CENTER LINE
---	PROPOSED LIGHT RAIL
---	CURB LINES
==	SOUTH CENTRAL WATERFRONT OVERLAY
+ + +	PROPOSED ROAD/BRIDGE
	DOWNTOWN AREA ELECTRIC NETWORK
	RECORD INFORMATION
	FIRE HYDRANT
	WATER VALVE
	WATER METER
	AIR RELEASE VALVE
	GRATE INLET
	CURB INLET (SIZE VARIES)
	STORMSEWER MANHOLE (SIZE VARIES)
	ELECTRIC MANHOLE (SIZE VARIES)
COMM	COMMUNICATION MANHOLE (SIZE VARIES)
WMMH	WASTEWATER MANHOLE (SIZE VARIES)
COO	WASTEWATER CLEANOUT
W	WATER LINE
WW	WASTEWATER LINE
RWL	RECLAIMED WATER LINE
SD	STORM DRAINAGE
G	GAS LINE
UC	UNDERGROUND COMMS
UE	UNDERGROUND ELECTRIC

PROJECTED WET UTILITIES - KEY TAKEAWAYS

1. **Water**: Existing water lines on Congress, South 1st, and Barton Springs Road are sized appropriately for the proposed densities. **Water lines in Riverside and smaller roadways need to be upsized.**
2. **Wastewater**: Existing wastewater lines on South 1st, Riverside, parts of Congress, and Barton Springs Road are sized appropriately for proposed densities. **Lines in other areas need to be upsized.** All wastewater lines in SCW are routed to the existing 48" main in Riverside that flows west to east, yet information on existing capacity of this wastewater line was not available.
3. **Stormwater**: Existing stormwater lines in parts of South 1st, Congress, Riverside, and Barton Springs Road are generally sized appropriately for proposed densities. **In other areas, lines need to be upsized.** Many upgrades are required as lines do not meet needs of existing development; sizing is based on amount of impervious cover, and SCW is fully built out by that standard. Portions of SCW are within the 100-year floodplain and already inundated, specifically along Bouldin Creek. **Upgrades at creek crossings at South 1st, Congress, and Riverside would relieve some of current flooding.**
4. **Reclaimed Water**: No reclaimed water mains exist in SCW today; however, an extension is planned on Riverside from the west, then south on South 1st to connect SCW to the City's system and a line constructed for 425 West Riverside. Thus, **all other roadways in SCW need to supply reclaimed water.** Per code (Sec. 25-9-411), large developments are required to connect to the system if their site is within 500 feet of a reclaimed waterline; therefore, extension requirements will be based on when development applications are filed.

Note: Wet utilities are considered on a project-by-project basis by application. System upgrades are the applicant's responsibility if the development's demand requirements cannot be met by existing lines.

PROJECTED WET UTILITIES -- COST ESTIMATES

Utility	Specification	Linear Feet (LF)	Cost per LF ³	Total Cost ⁴
Water ¹	8"	1,412	\$154	\$217,448
	12"	1,913	\$168	\$321,384
	16"	3,706	\$210	\$778,260
	24"	1,069	\$234	\$250,146
Wastewater ¹	8"	1,179	\$215	\$253,485
	12"	1,072	\$250	\$268,000
	15"	2,322	\$275	\$638,550
Stormwater ²	66"	223	\$685	\$152,755
	60"	675	\$420	\$283,500
	54"	745	\$610	\$454,450
	48"	744	\$540	\$401,760
	48"x48"	1,443	\$600	\$865,800
	42"	266	\$420	\$111,720
	30"	470	\$288	\$135,360
	24"	708	\$240	\$169,920
Reclaimed Water ¹	12"	4,557	\$250	\$1,139,250
	24"	4,708	\$375	\$1,765,500
TOTAL				\$8.21M

Footnotes:

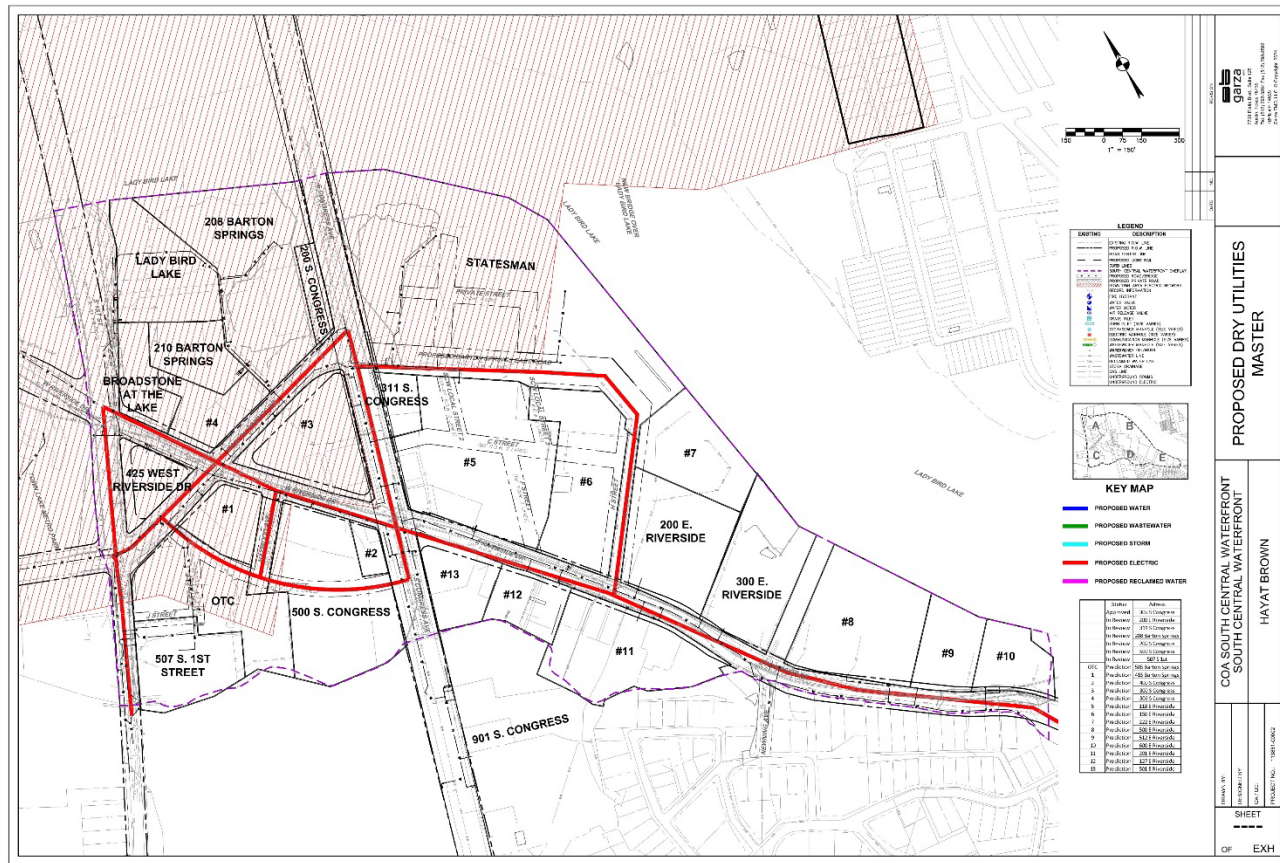
¹ Unit costs for water, reclaimed water, and wastewater are based on COA corridor mobility bid tabs and item number 510-AW.

² Unit costs for stormwater are based on TxDOT Bid Items 464/.

³ Unit costs are based on 2019 average bid price + 25% contingency.

⁴ Costs shown are for linear construction only and does not include design, permitting, right-of-way fees, management, or additional contingencies .

FINDING: PROJECTED NEED FOR DRY UTILITIES



KEY MAP



LEGEND

EXISTING	DESCRIPTION
---	EXISTING R.O.W. LINE
---	PROPOSED R.O.W. LINE
---	ROAD CENTER LINE
---	PROPOSED LIGHT RAIL
---	CURB LINES
---	SOUTH CENTRAL WATERFRONT OVERLAY
---	PROPOSED ROAD/BRIDGE
---	DOWNTOWN AREA ELECTRIC NETWORK
---	RECORD INFORMATION
---	FIRE HYDRANT
---	WATER VALVE
---	WATER METER
---	AIR RELEASE VALVE
---	GRATE INLET
---	CURB INLET (SIZE VARIES)
---	STORMSEWER MANHOLE (SIZE VARIES)
---	ELECTRIC MANHOLE (SIZE VARIES)
---	COMMUNICATION MANHOLE (SIZE VARIES)
---	WASTEWATER MANHOLE (SIZE VARIES)
---	WASTEWATER CLEANOUT
---	WATER LINE
---	WASTEWATER LINE
---	RECLAIMED WATER LINE
---	STORM DRAINAGE
---	GAS LINE
---	UNDERGROUND COMMS
---	UNDERGROUND ELECTRIC

PROJECTED DRY UTILITIES: COST ESTIMATES AND KEY TAKEAWAYS

Utility	Linear Feet	Cost per LF ¹	Total Cost ²
Duct Bank ¹	10,905	\$1,200	\$13,631,250
TOTAL			\$6.86M

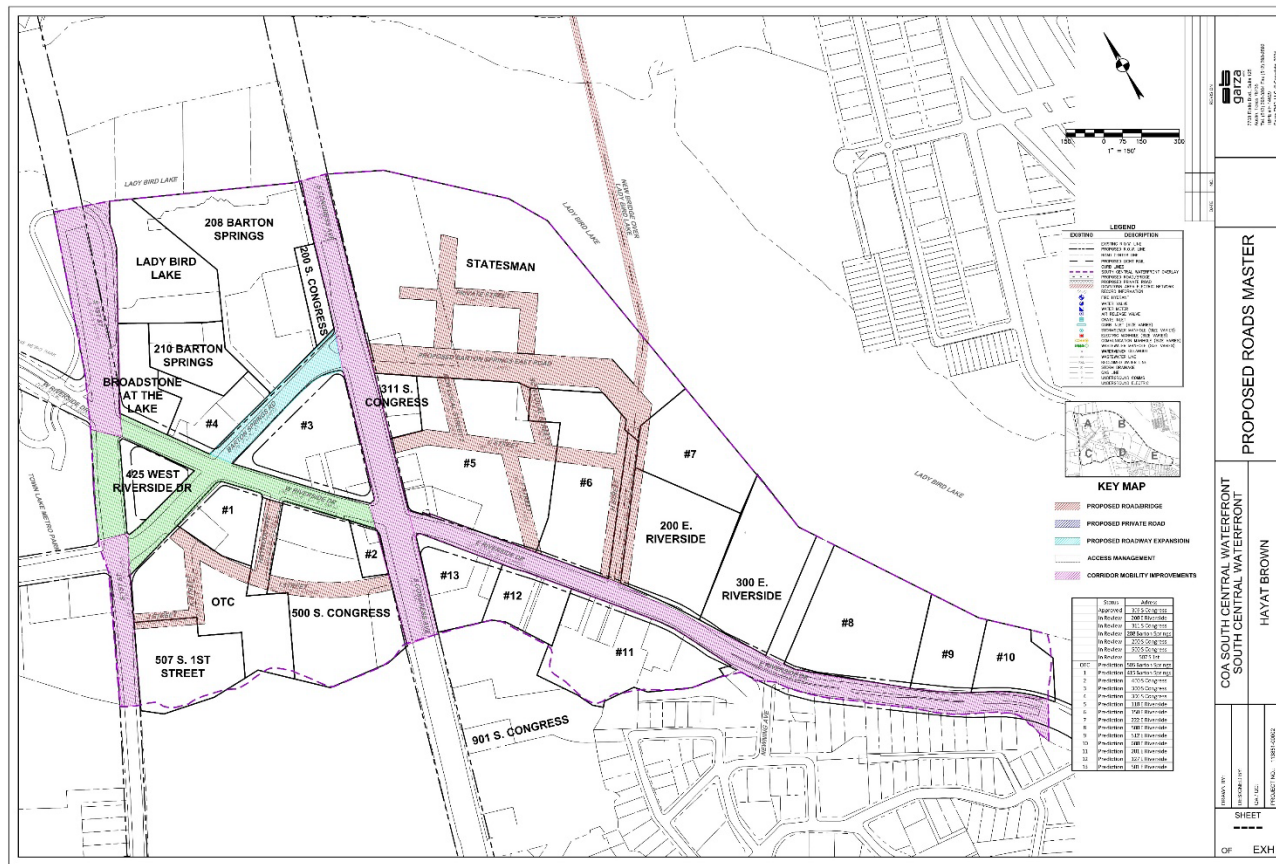
Footnotes:

¹ Unit costs are based on recent information (2023) supplied by utility subcontractors.

² Costs shown are for linear construction cost only for the empty duct banks, concrete, etc. and does not include design, permitting, right-of-way fees, management, or additional contingencies. This cost also does not include cost associated with pulling wires through the conduits, etc.

1. As highlighted on map, SCW is **split between two separate Austin Energy service areas**:
 - Network area, traditionally related to downtown Central Business District (CBD), allows for onsite transformers to be located within vault rooms integrated into buildings.
 - Distribution area requires transformers to be pad mounted and located at grade with appropriate clearances around and above them.
2. Cost estimates **do not** include:
 - pulling of electric cables through duct banks by Austin Energy.
 - transformers, switchgears, or similar infrastructure; and
 - **larger system needs, such as a substation.**
3. Austin Energy utility line extensions, transformers, etc. costs are typically funded by the individual developments if adequate infrastructure does exist to support project's demand requirements.

PROJECTED NEED FOR ROAD NETWORK



KEY MAP

-  PROPOSED ROAD/BRIDGE
 PROPOSED PRIVATE ROAD
 PROPOSED ROADWAY EXPANSION
 ACCESS MANAGEMENT
 CORRIDOR MOBILITY IMPROVEMENTS

LEGEND

EXISTING	DESCRIPTION
---	EXISTING R.O.W. LINE
=====	PROPOSED R.O.W. LINE
- - -	ROAD CENTER LINE
=====	PROPOSED LIGHT RAIL
---	CURB LINES
=====	SOUTH CENTRAL WATERFRONT OVERLAY
- + - + -	PROPOSED ROAD/BRIDGE
=====	DOWNTOWN AREA ELECTRIC NETWORK
=====	RECORD INFORMATION
(XXXX)	FIRE HYDRANT
	WATER VALVE
	AIR RELEASE VALVE
	GRATE INLET
	CURB INLET (SIZE VARIES)
	STORMSEWER MANHOLE (SIZE VARIES)
	ELECTRIC MANHOLE (SIZE VARIES)
COMM	COMMUNICATION MANHOLE (SIZE VARIES)
WMH	WASTEWATER MANHOLE (SIZE VARIES)
COO	WASTEWATER CLEANOUT
---	WATER LINE
---	WASTEWATER LINE
---	RECLAIMED WATER LINE
---	STORM DRAINAGE
---	GAS LINE
---	UNDERGROUND COMMS
---	UNDERGROUND ELECTRIC

PROJECTED ROAD NETWORK: COST ESTIMATES AND KEY TAKEAWAYS

Street Type	Specification ³	Total SF	Cost per SF ³	Total Cost ⁴
Corridor Mobility L.3	S Congress Ave	21,208	\$80.00	\$873,600
Corridor Mobility L.3	S Congress Ave	33,132	\$75.00	\$1,304,160
Corridor Mobility L.1&3	Varies	269,368	\$65.00	\$7,602,400
Corridor Mobility L.4	Access Management	87,560	\$50.00	\$1,524,800
Local L.1	New Roadway	183,975	\$45.00	\$1,038,800
Corridor Mobility L.3	S 1st St	55,176	\$35.00	\$637,500
TOTAL				\$36.3M

New roadways are based on the Austin Strategic Mobility Plan (ASMP).

Footnotes:

¹ Costs are for roads include curb and gutters. Sidewalks and streetscape excluded.

² Assume 3" HMA type C, 4" HMA Type B over, and 4" HMA type B.

³ Unit costs are based on 2019 average bid price + 25% contingency.

⁴ Costs are for linear construction only and does not include design, permitting, right-of-way fees, management, or additional contingencies.

Improvements and fees are subject to negotiation by project.

- Improvements and fees are calculated by project through Traffic Impact Analysis (TIA) and by the Street Impact Fees (SIF), which are calculated by project based on zoning category, use, and location with a fixed maximum fee by development.
- Therefore, required roadway improvements are determined by the TIA review process and applied toward the maximum SIF fee.
- If the proposed improvements are less than the SIF, the balance is paid. If additional improvements are higher than the SIF, then requirements will be renegotiated.