A Hybrid Approach to Mitigating Development Impacts on Transportation: Integrating Street Impact Fees and Critical Infrastructure Constructions

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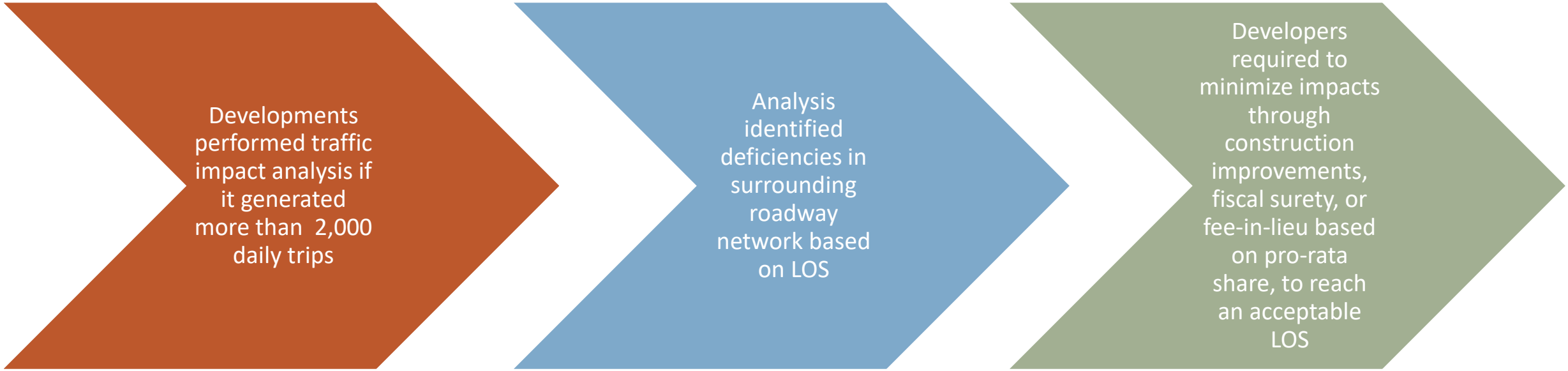
Traditional (Old) Approach to Mitigating Development Impact at CoA



Challenges with the Traditional (Old) Approach

Unpredictable

- Costs determined after lengthy study, could be cost-prohibitive

Rigid

- Fees collected can legally only be spent towards specific improvements

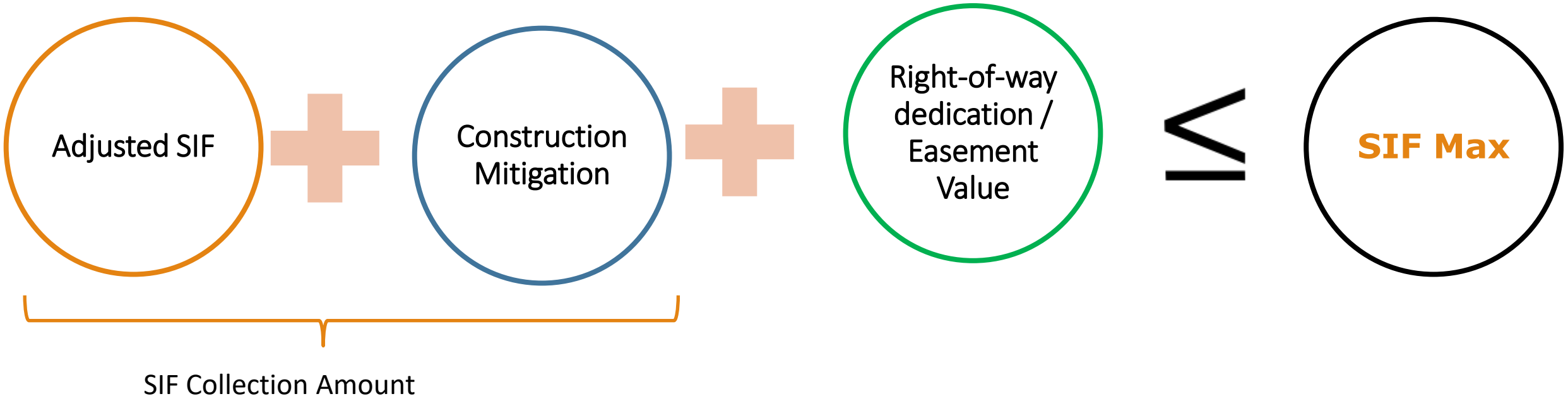
Inequitable

- Since based on LOS, it can encourage urban sprawl and provide fewer incentives for infill/urban development

Not Transparent

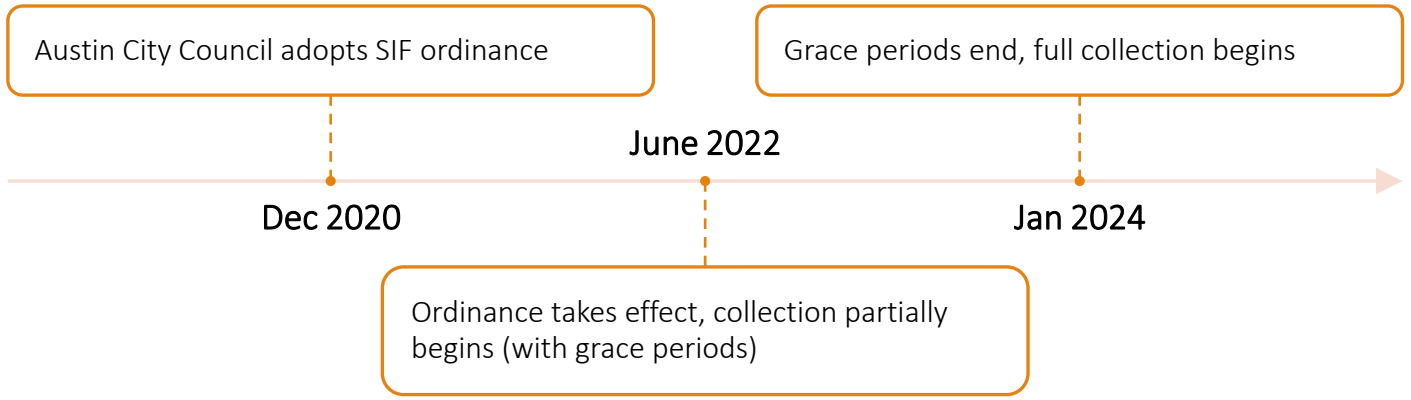
- Significant part of the process is negotiation-dependent

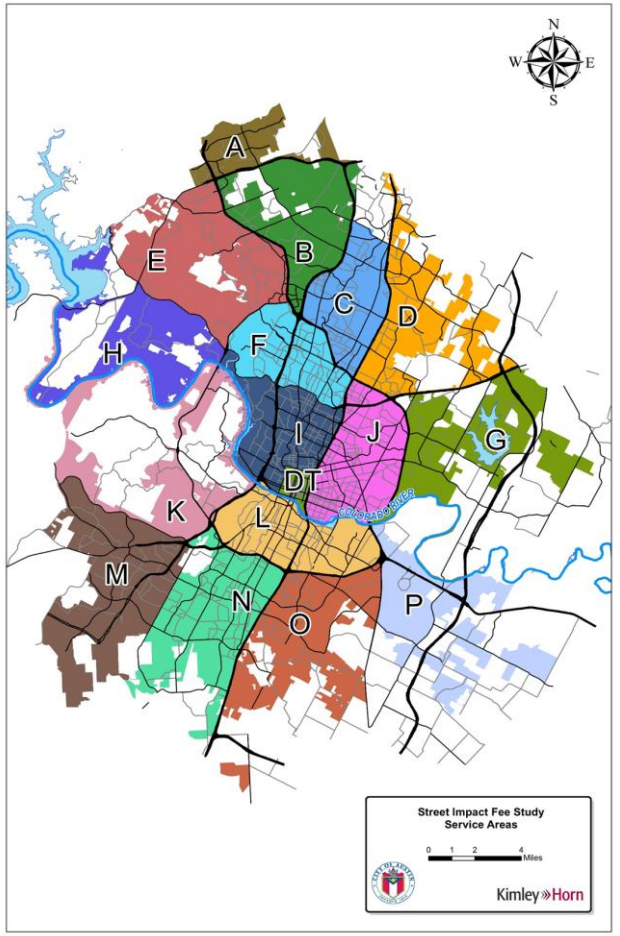
New Approach = A Hybrid Street Impact Fee (SIF) Approach



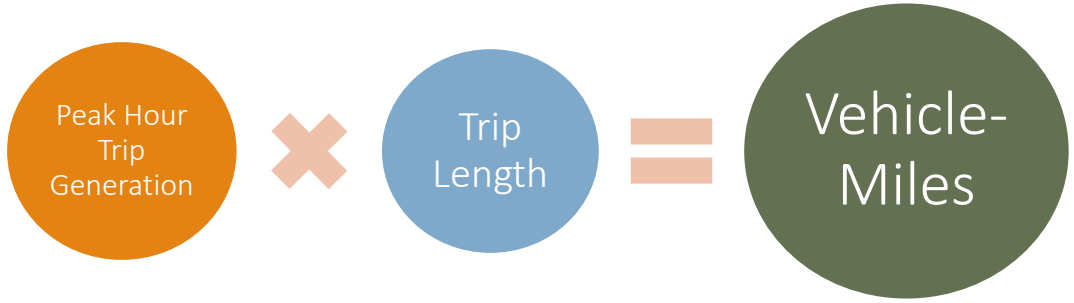
Street Impact Fees (SIF)

- Street impact fees (SIF) help fund projects necessitated by new development.
- SIF is calculated based on land use types, intensity, and the "service area".
- The city is divided into 17 SIF service areas.





SIF Calculation – Fundamental Concept

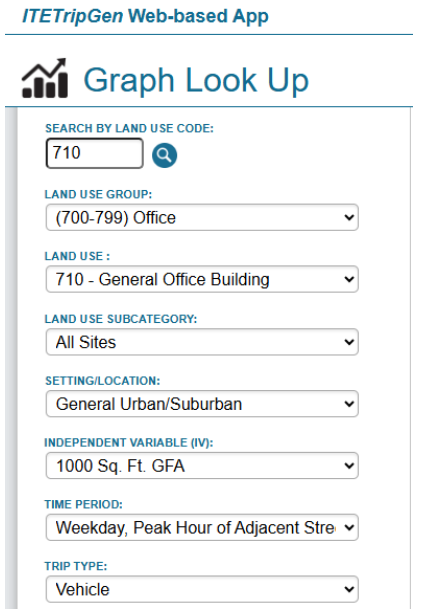


PM Peak Hour Trips

- ITE Trip Generation Manual

Trip length

- Capital Area Metropolitan Planning Organization (CAMPO) long-range transportation model



How did COA set the SIF Rate?

CITY OF AUSTIN, TEXAS
STREET IMPACT FEE STUDY
FINAL DRAFT

January 2020

Prepared for the City of Austin

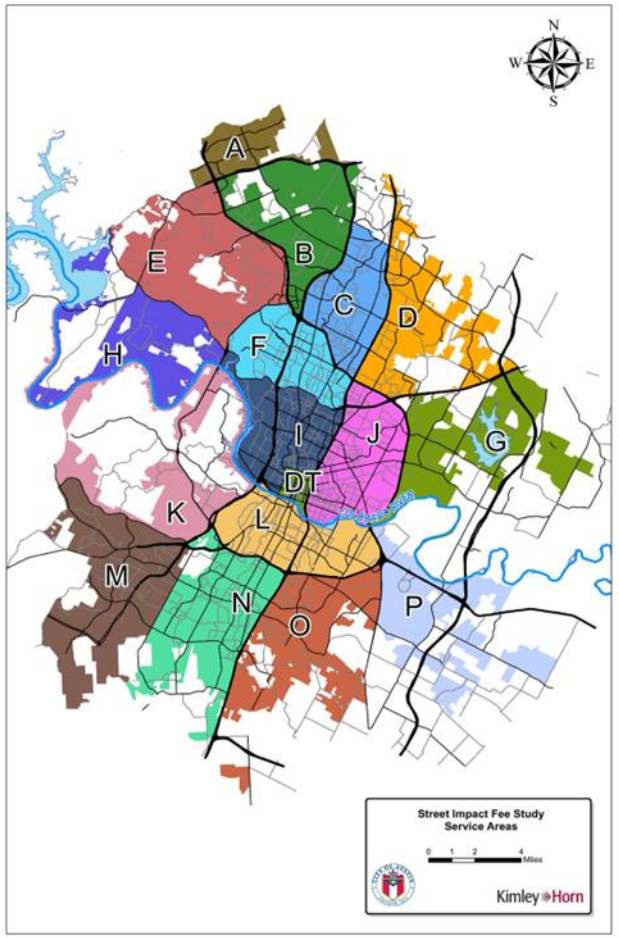
Prepared by:
Kimley-Horn and Associates, Inc.

This study looked at a period of 10 years:

i. Amount of new development anticipated
   - Converted to vehicle-miles

ii. Corresponding capacity needs, Roadway Capacity Plan (RCP)
   - Required capital improvement

Maximum SIF
= Cost of RCP from developments / Total Vehicle-miles



10 years Growth Projections (Veh-Mile)

Service Area		Dwelling Units			Employment (SqFt)			
		Single Family	Multi-Family	Total	Basic	Service	Retail	Total
City	2017	179,259	224,030	403,289	72,017,000	125,112,000	79,359,000	276,488,000
	2027	212,913	315,313	528,226	84,503,000	158,956,000	109,182,000	352,641,000
	10-Year Growth	*33,654*	*91,283*	*124,937*	*12,486,000*	*33,844,000*	*29,823,000*	*76,153,000*
A	2017	4,876	5,380	10,256	52,000	1,358,000	3,220,000	4,630,000
	2027	5,645	10,211	15,856	79,000	2,814,000	4,669,000	7,562,000
	10-Year Growth	*769*	*4,831*	*5,600*	*27,000*	*1,456,000*	*1,449,000*	*2,932,000*
P	2017	3,686	224	3,910	252,000	788,000	316,000	1,356,000
	2027	6,587	2,623	9,210	1,642,000	1,794,000	3,043,000	6,479,000
	10-Year Growth	*2,901*	*2,399*	*5,300*	*1,390,000*	*1,006,000*	*2,727,000*	*5,123,000*
DT	2017	110	9,391	9,501	278,000	25,713,000	7,189,000	33,180,000
	2027	95	13,188	13,283	252,000	32,714,000	8,435,000	41,401,000
	10-Year Growth	*(15)*	*3,797*	*3,782*	*(26,000)*	*7,001,000*	*1,246,000*	*8,221,000*

Variable	Residential, Single Family	Residential, Multifamily	Basic	Service	Retail
T	0.99	0.56	0.63	1.15	3.81
P_b	0%	0%	0%	0%	34%
L_{inside}	5.81	5.81	6.15	7.42	5.82
$L_{outside}$	8.59	8.59	12.89	6.76	6.35
$L_{max,\ inside}$*	2.90	2.90	3.07	3.71	2.91
$L_{max,\ outside}$*	4.30	4.30	6.00	3.38	3.18
TDF, inside	**2.87**	**1.62**	**1.93**	**4.27**	**7.30**
TDF, outside	**4.26**	**2.41**	**3.78**	**3.89**	**7.98**

* L_{max} is less than 6 miles for residential and retail land uses; therefore this lower trip length is used for calculating the TDF for these land uses.

$$TDF = T * (1 - P_b) * L_{\max}$$

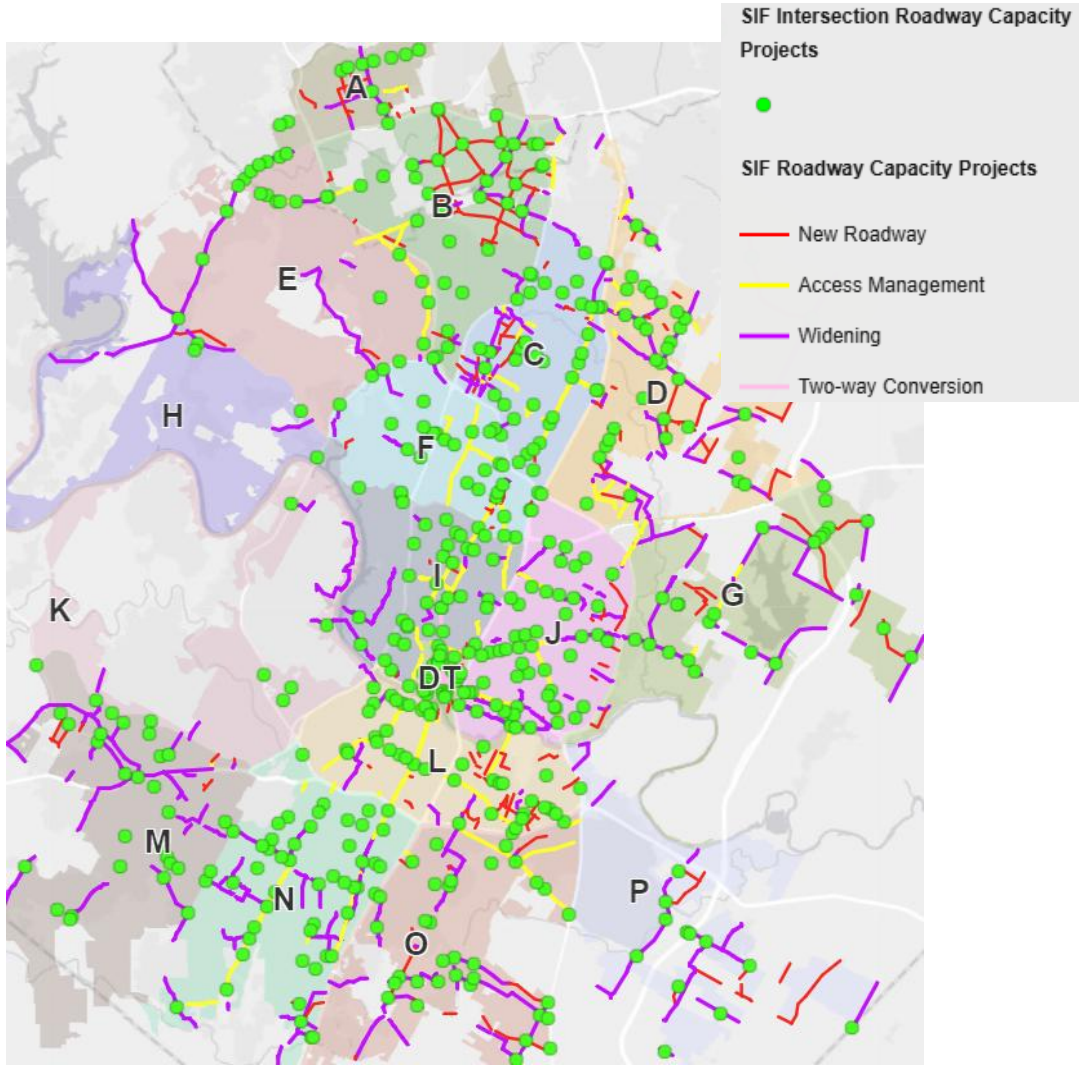
where... $L_{\max} = \min(L * OD \text{ or } 6)$

TDF = Transportation Demand Factor,
T = Trip Rate (peak hour trips / unit),
P_b = Pass-By Discount (% of trips),
L_{max} = Maximum Trip Length (miles),
L = Average Trip Length (miles), and
OD = Origin-Destination Reduction (50%)

2017 - 2027 Growth Projections[1]

SERVICE AREA	RESIDENTIAL VEHICLE-MILES					NON-RESIDENTIAL SQUARE FEET[5]			TRANS. DEMAND FACTOR[6]			NON-RESIDENTIAL VEHICLE-MILES[10]				TOTAL VEHICLE MILES[11]	AREA NEAR TRANSIT[12]	TRANSIT ADJUSTED VEH-MI[13]
	Single Family Units	Trip Rate TDF[2]	Multi-Family Units	Trip Rate TDF[3]	VEHICLE MILES[4]	BASIC	SERVICE	RETAIL	BASIC[7]	SERVICE[8]	RETAIL[9]	BASIC	SERVICE	RETAIL	TOTAL			
		0.99		*0.56*					*0.63*	*1.15*	*3.81*							
A	769	4.26	4,831	2.41	14,919	27,000	1,456,000	1,449,000	3.78	3.89	7.98	102	5,664	11,563	17,329	32,248	0%	32,248
B	2,187	4.26	8,022	2.41	28,650	776,000	1,182,000	2,356,000	3.78	3.89	7.98	2,933	4,598	18,801	26,332	54,982	0%	54,982
C	641	4.26	5,313	2.41	15,535	189,000	2,250,000	1,561,000	3.78	3.89	7.98	714	8,753	12,457	21,924	37,459	34%	31,028
N	1,646	4.26	7,066	2.41	24,041	241,000	3,591,000	2,790,000	3.78	3.89	7.98	911	13,969	22,264	37,144	61,185	29%	52,261
O	3,892	4.26	5,263	2.41	29,264	1,524,000	200,000	4,003,000	3.78	3.89	7.98	5,761	778	31,944	38,483	67,747	15%	62,818
P	2,901	4.26	2,399	2.41	18,140	1,390,000	1,006,000	2,727,000	3.78	3.89	7.98	5,254	3,913	21,761	30,928	49,068	1%	48,823
DT	-15	2.87	3,797	1.62	6,108	-26,000	7,001,000	1,246,000	1.93	4.27	7.30	-50	29,894	9,096	38,940	45,048	88%	25,259
Totals	**33,655**		**91,285**		**326,774**	**12,486,000**	**33,844,000**	**29,823,000**				**45,795**	**136,486**	**233,402**	**415,683**	**742,457**		**661,737**

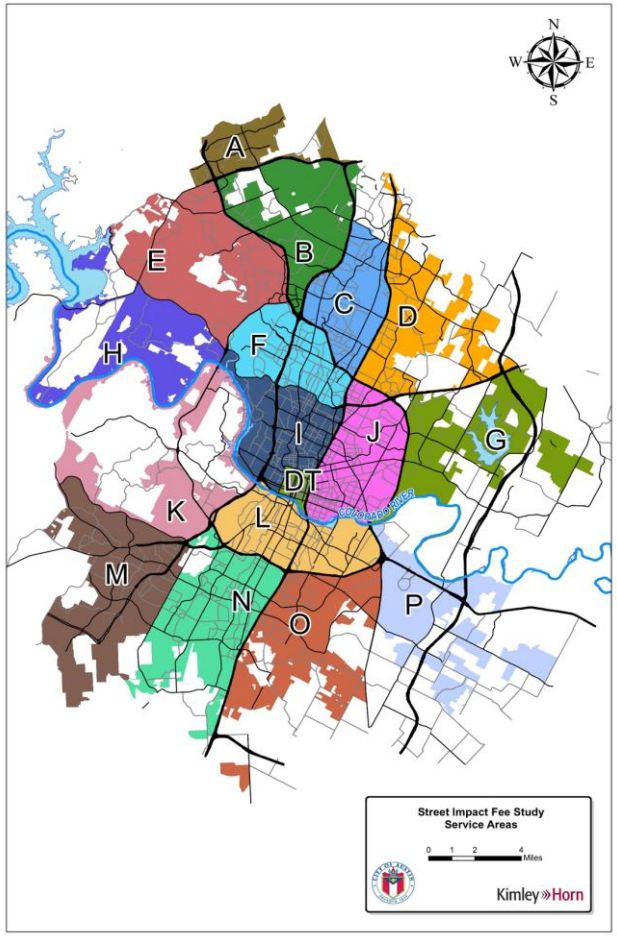
10-year Roadway Capacity Plan (RCP)



	SERVICE AREA:	A	B	C
1	TOTAL VEH-MI OF CAPACITY ADDED BY THE STREET IMPACT FEE RCP (FROM STREET IMPACT FEE RCP SERVICE UNITS OF SUPPLY, APPENDIX B)	20,629	98,930	54,557
2	TOTAL VEH-MI OF EXISTING DEMAND (FROM STREET IMPACT FEE RCP SERVICE UNITS OF SUPPLY, APPENDIX B)	8,390	11,346	21,324
3	NET AMOUNT OF VEH-MI OF CAPACITY ADDED (LINE 1 - LINE 2)	12,239	87,584	33,233
4	TOTAL COST OF THE ROADWAY IMPACT FEE RCP WITHIN SERVICE AREA (FROM **TABLES 4A TO 4P**)	$ 57,804,000	$ 340,047,000	$ 148,218,500
5	COST OF NET CAPACITY SUPPLIED (LINE 3 / LINE 1) * (LINE 4)	$ 34,294,593	$ 301,047,978	$ 90,286,222
6	COST TO MEET EXISTING NEEDS AND USAGE (LINE 4 - LINE 5)	$ 23,509,407	$ 38,999,022	$ 57,932,278
7	TOTAL VEH-MI OF NEW DEMAND OVER TEN YEARS UNADJUSTED (FROM **TABLE 7** AND **LAND USE ASSUMPTIONS**)	32,248	54,982	37,459
8	% SERVICE AREA NEAR TRANSIT (FROM **TABLE 7**)	0.0%	0.0%	34.3%
9	TOTAL VEH-MI OF NEW DEMAND OVER TEN YEARS TRANSIT ADJUSTED (FROM **TABLE 7**)	32,248	54,982	31,028
10	PERCENT OF CAPACITY ADDED ATTRIBUTABLE TO GROWTH (LINE 9 / LINE 3)	263.4%	62.7%	93.3%
11	IF LINE 9 > LINE 3, REDUCE LINE 10 TO 100%, OTHERWISE NO CHANGE	100.0%	62.7%	93.3%
12	COST OF ROADWAY IMPACT FEE RCP ATTRIBUTABLE TO GROWTH (LINE 5 * LINE 11)	$ 34,294,593	$ 188,757,082	$ 84,237,045
13	TOTAL COST OF THE INTERSECTION IMPACT FEE RCP WITHIN SERVICE AREA (FROM **TABLES 4A TO 4P**)	$ 5,782,250	$ 13,498,500	$ 39,524,500
14	PERCENT OF INTERSECTION CAPACITY ADDED ATTRIBUTABLE TO GROWTH (TRANSIT ADJUSTED NEW DEMAND OVER TEN YEARS / 2027 DEMAND)	33%	26%	10%
15	COST OF INTERSECTION IMPACT FEE RCP ATTRIBUTABLE TO GROWTH (LINE 13 * LINE 14)	$ 1,908,143	$ 3,509,610	$ 3,952,450
16	COST OF TOTAL STREET IMPACT FEE RCP ATTRIBUTABLE TO GROWTH (LINE 12 + LINE 15)	$ 36,202,736	$ 192,266,692	$ 88,189,495
17	EXISTING ESCROW FUND BALANCE	$ 48,700	$ 423,748	$ 1,342,833
18	COST OF THE ROADWAY IMPACT FEE RCP ATTRIBUTABLE TO NEW GROWTH LESS DEVELOPER CONTRIBUTIONS (LINE 16 - LINE 17 + STUDY COST PER SERVICE AREA)	$ 36,237,145	$ 191,926,053	$ 86,929,771
19	PRE-CREDIT, PRE-FINANCING MAXIMUM FEE PER SERVICE UNIT (LINE 18 / LINE 9)	**$ 1,124**	**$ 3,491**	**$ 2,802**
20	FINANCING COSTS (FROM **APPENDIX C**)	$ 17,294,189	$ 92,977,385	$ 41,831,530
21	INTEREST EARNINGS (FROM **APPENDIX C**)	$ (5,614,948)	$ (34,683,805)	$ (14,744,421)
22	CREDIT FOR AD VALOREM TAXES (FROM **APPENDIX C**)	$ (435,791)	$ (3,969,579)	$ (1,010,670)
23	RECOVERABLE COST OF STREET IMPACT FEE RCP AND FINANCING (LINE 18 + LINE 20 + LINE 21 + LINE 22)	$ 47,480,594	$ 246,250,054	$ 113,006,209

How did COA set the SIF Rate?

Service Area	Maximum Fee Per Service Unit (per Vehicle-Mile)	Service Area	Maximum Fee Per Service Unit (per Vehicle-Mile)
A	$1,472	I	$1,712
B	$4,479	J	$3,724
C	$3,642	K	$5,752
D	$2,218	L	$2,520
DT	$1,361	M	$2,415
E	$2,043	N	$1,507
F	$1,604	O	$3,921
G	$3,071	P	$3,011
H	$1,543		

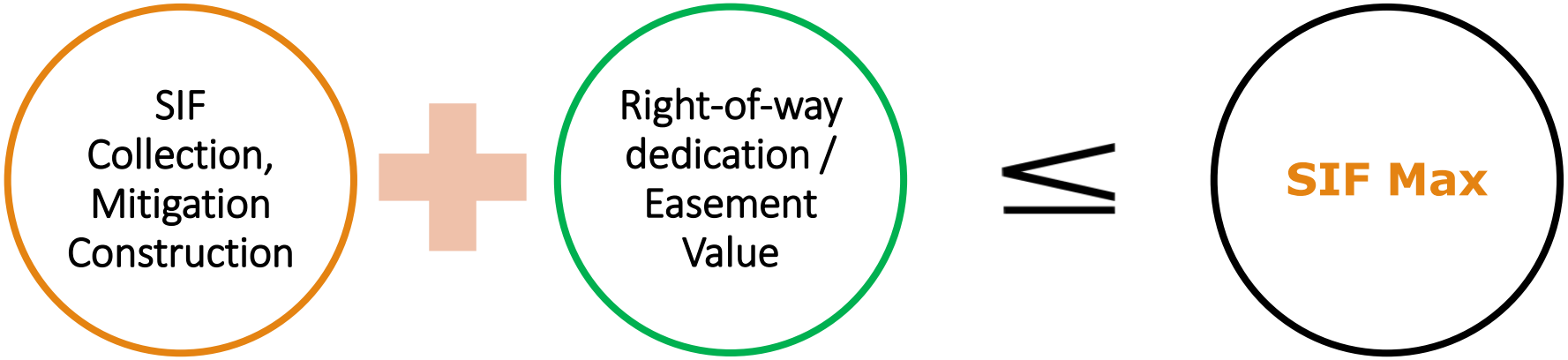


Council Adjustments: SIF Hybrid Approach

"City Council finds that a lower collection rate for residential developments is in the public interest, due to the current affordable housing shortage that exists within the City."

"City Council finds that charging the maximum assessable street impact fee initially may inhibit new nonresidential developments within the city, thus impacting the economic and general welfare of the community."

- SIF Collection = 35 % of the average maximum assessable fee for residential developments
- SIF Collection = 50 % of the average maximum assessable fee for non-residential developments



SIF Exemptions/Discounts

"Dining", "Animal Hospital / Vet Clinic", "Hair Salon", "Other Retail", "Automobile Care Center" - $0 SIF Collection under 1,000 GSF; $608/veh-mile under 5,000 GSF

"Daycare" - exempt from SIF Collection at any size

Walk-in Bank", "Drive-in Bank", and **"Supermarket"** exempt from SIF Collection in Service Areas D, G, O, and P

SIF Reductions

Affordability Reductions

- Rental Unit over 40yrs @ 60% MFI
- Owner-Occupied Unit over 99yrs @ 80% MFI

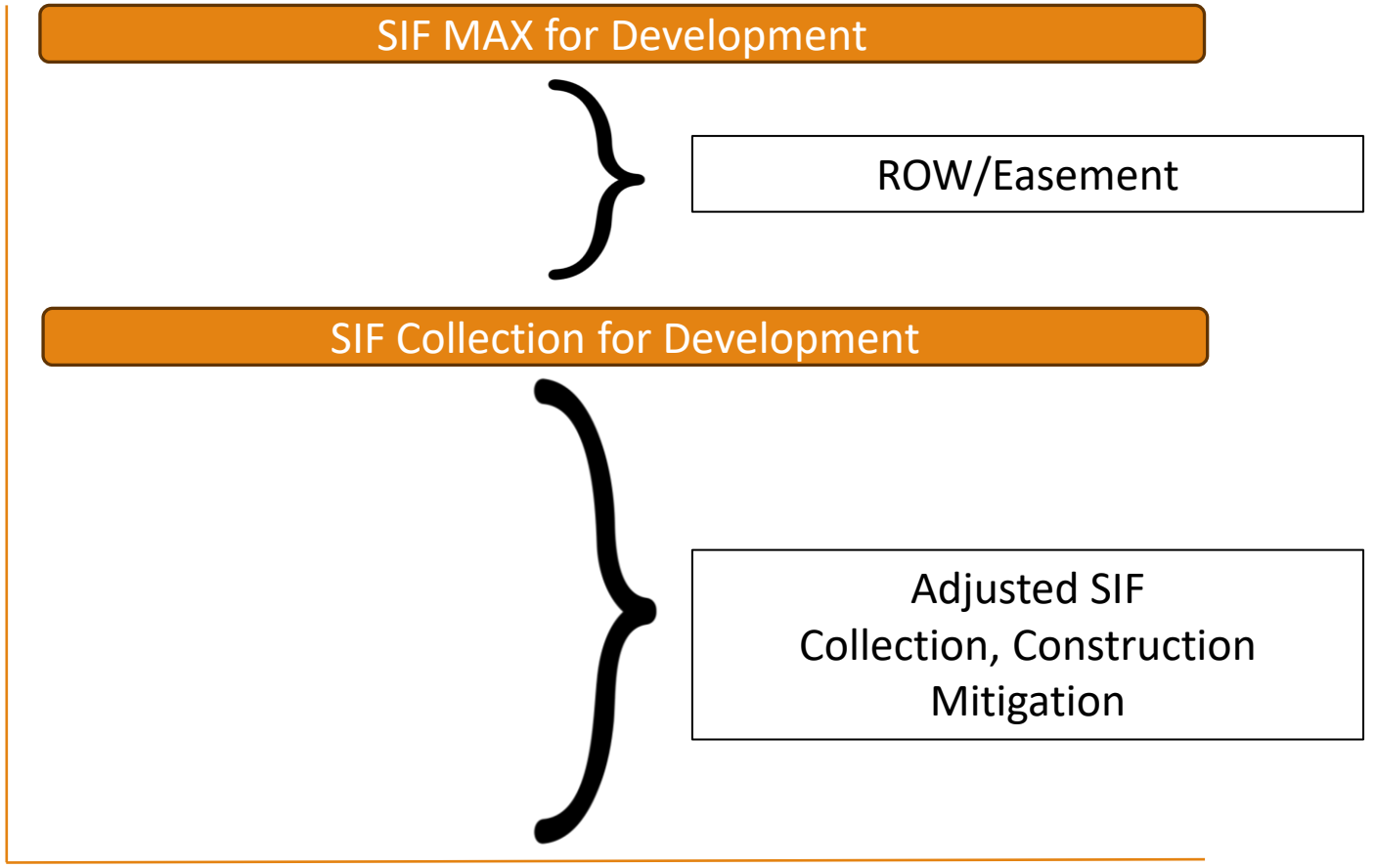
Mobility Reductions

- Trip Capture
- Transportation Demand Management

Trip Capture	Street Impact Fee Reduction
5% - 9%	5%
10% - 14%	10%
15% - 19%	15%
20% or greater	20%

TDM Category	Service Area DT OR UNO District	Service Areas F, I, J, L, parts of K	All other Service Areas
Transit Proximity	20%	10%	5%
Parking	20%	10%	5%

ROW / Easement



Construction Mitigation

Offsetable

- Construction cost of capital improvements in the Roadway Capacity Plan
- Roadways – additional lanes, bridges
- Intersections – signals, curb ramps, ped buttons, beacons, turn lanes
- Bike Lanes, Sidewalks

Non-offsetable

- Repair and maintenance of existing or new facilities
- Upgrades to serve existing use
- Administrative costs
- Some TDM measures

Required Improvements

- If essential to the operations of the development, e.g. if a traffic signal is warranted for a development, developer has to construct
- If TIA shows as required
- If on site frontage and shown in the Transportation Criteria Manual cross section

Optional Improvements

- Any other improvement if in the "offsetable" category

Advantages to SIF

Predictable

- Anyone can determine the fee without doing an intensive study

Transparent

- A worksheet to calculate the fee is publicly available

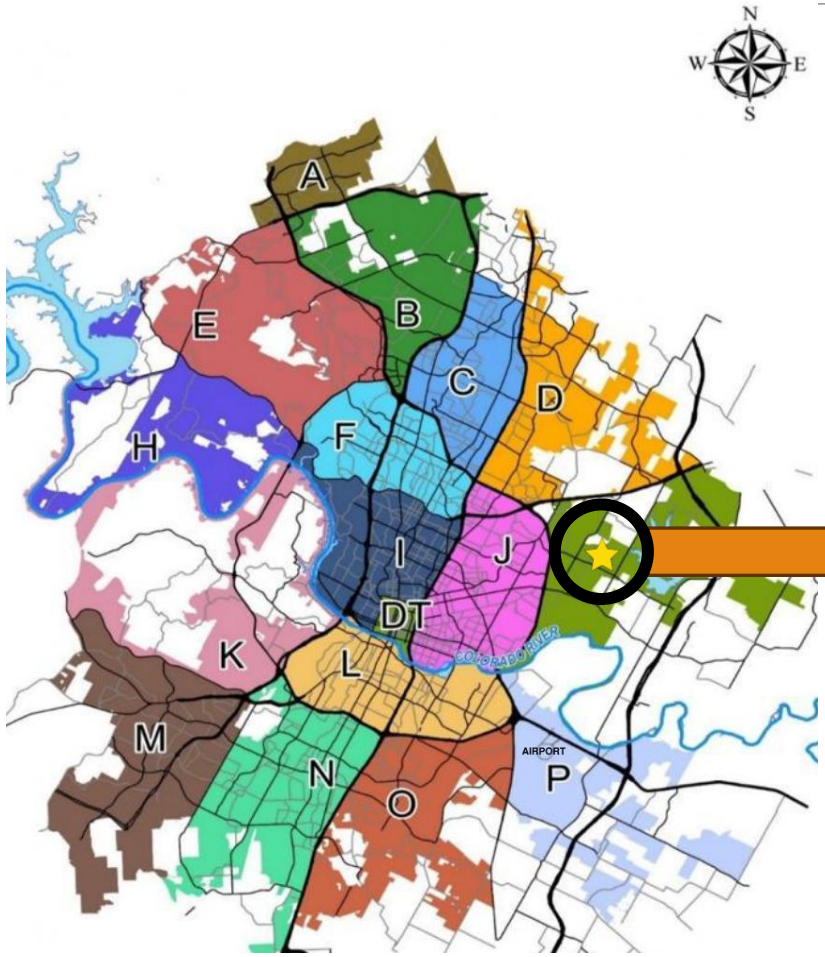
Flexible

- Fees collected can be spent within a Service Area on any projects identified in the study

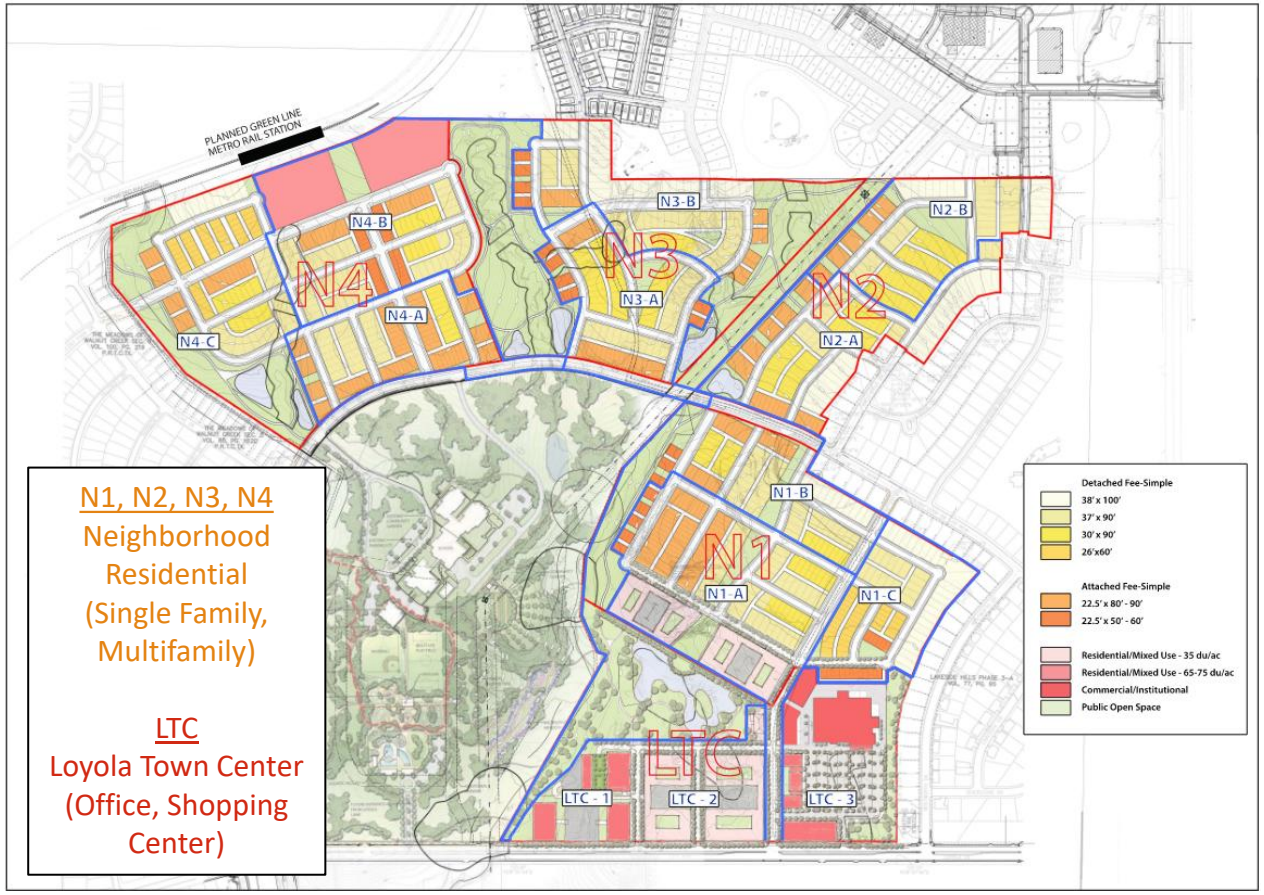
Equitable

- Developments of same type and intensity pay equal fee within a Service Area

Case Study – Colony Park PUD



Case Study – Proposed Land Use



N1, N2, N3, N4
Neighborhood Residential (Single Family, Multifamily)

LTC
Loyola Town Center (Office, Shopping Center)

Land Use	Size	24-Hour Two-Way Volume
Single Family Detached	1,800 DU	16,974
Multifamily Housing (Mid-Rise)	1,200 DU	5,448
General Office	260,000 SF	2,818
Shopping Center	240,000 SF	8,882
Total		**34,122**

Case Study – SIF

STREET IMPACT FEE CALCULATION:

PROPOSED LAND USES

						Potential Collection Amounts	
(210) Single-Family Detached Housing	Dwelling Unit	1800	0.99	4.3	4.26	$ 3,621.00	$ 6,517,800.00
(221) Mid-Rise Apartments or Condominiums	Dwelling Unit	1200	0.44	4.3	1.89	$ 1,606.50	$ 1,927,800.00
(710) General Office Building	1,000 SF GFA	260	1.15	3.38	3.89	$ 4,726.35	$ 1,228,851.00
(820) Shopping Center	1,000 SF GLA	240	2.51	3.18	7.98	$ 9,695.70	$ 2,326,968.00

Transportation Demand Management Reductions	
Contextual Trip Reduction Measures	**% Credit**
Internal Trip Capture (CTR-1)	10%
Transit Proximity (CTR-2)	2.5%
Parking Measures	
Reduced Parking Supply (P-1)	2.5%
Total	**15%**

Total Potential SIF Collection Amount
$12 Million

Mobility Related SIF Reduction
$1.8 Million

Final SIF Collection Amount (Before any Mitigation Construction)
$10.2 Million

Case Study – TIA

Traffic Impact Analysis (TIA) Determination Worksheet

Applicant must complete this worksheet.

Project Name: Colony Park TIA

Location: Colony Park P.U.D. (Northwest Corner of Decker Lane & Loyola Lane), Austin, TX 78724

Applicant: Kathleen G. Smith, P.E., PTOE Telephone No: 512-904-3700

Application Status: ○ Development Assessment ○ Zoning ⊗ Site Plan

☒ A traffic impact analysis is required. The consultant preparing the study must meet with a Transportation planner to discuss the scope and requirements of the study before beginning the study.

☐ A traffic impact analysis is NOT required. The traffic generated by the proposal does not exceed the thresholds established in the City of Austin Land Development Code.

☐ The traffic impact analysis has been waived for the following reason:

☐ A neighborhood traffic analysis will be performed by the City for this project. The applicant may have to collect existing traffic counts. See a Transportation planner for information.

Reviewed By: Matiur Rahman Date: 6/5/2023

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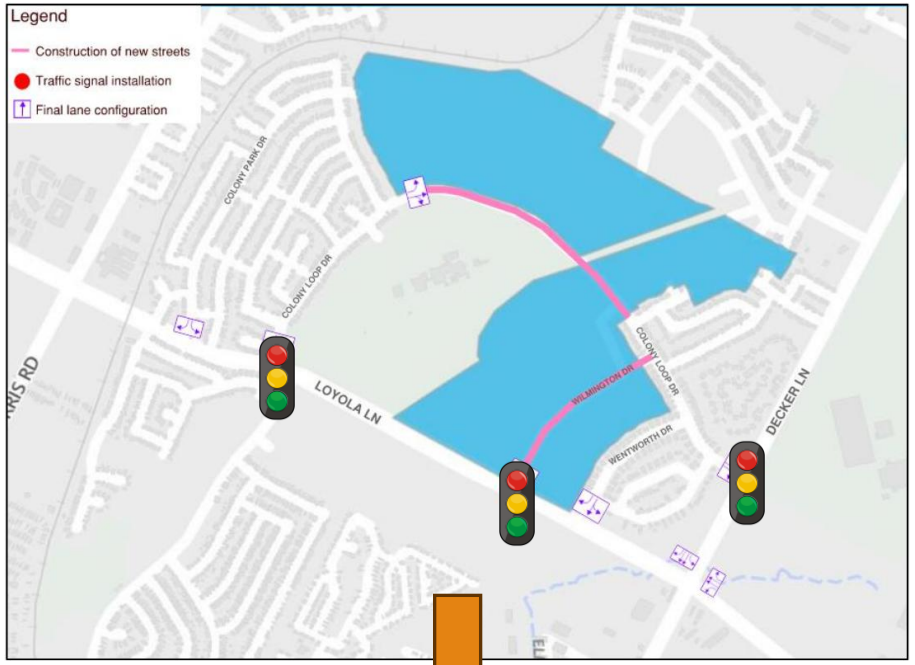
NOTE: A TIA Determination must be made prior to submittal of any Zoning or Site Plan application, therefore, this completed and reviewed worksheet MUST ACCOMPANY any subsequent application for the IDENTICAL project. CHANGES to the proposed project will REQUIRE a new TIA Determination.

Case Study – Mitigations

Colony Park TIA Update - Cost Estimates for City Required Improvements

Name	Improvement	Improvement Cost
Roadway		
Colony Loop Drive Construction	Design and construct the missing Colony Loop section from Overton Elementary School to Valleyfield Drive	*
Wilmington Drive Construction	Design and construct Wilmington Dr from Loyola Lane to Colony Loop Drive	*
Intersections		
Loyola Lane and Decker Lane	Construction of a southbound right-turn lane on Decker Lane (800-foot storage, 30-foot taper)	$ 503,000
	Construction of a westbound right-turn lane on Decker Lake Road (625-foot storage, 30-foot taper)	$ 342,000
	Signal timing optimization	$ 5,000
Loyola Lane and Colony Park Drive	Restriping of approach to provide a southbound right-turn lane on Colony Park Drive (270-foot storage, 30-foot taper)	$ 10,000
Loyola Lane and Colony Loop Drive/Cielo Vista Drive	Restriping of approach to provide a southbound right-turn lane on Colony Loop Drive (345-foot storage, 30-foot taper)	$ 10,000
	Installation of a traffic signal when warrants are met	$ 480,000
Loyola Lane and Wentworth Drive	Restriping of approach to provide a southbound right-turn lane on Wentworth Drive (170-foot storage, 30-foot taper).	$ 10,000
Decker Lane and Colony Loop Drive	Restriping of approach to provide an eastbound left-turn and right-turn lane on Colony Loop Drive (100-foot storage, 100-foot taper)	$ 10,000
	Installation of a traffic signal when warrants are met	$ 360,000
Scool/Dwy B and Colony Loop Drive	Restriping of approach to provide a eastbound left-turn lane on Colony Loop Drive (100-foot storage, 100-foot taper)	$ 10,000
Loyola Lane and Dwy O/Wilmington Drive	Construct and stripe southbound approach to prove one left-turn lane and one through/right-turn lane	*
	Installation of a traffic signal when warrants are met	$ 360,000



Total Cost of Signal Improvements – $1.2 Million

Total Cost of Other Intersection Improvements – $1 Million

Case Study – Mitigations

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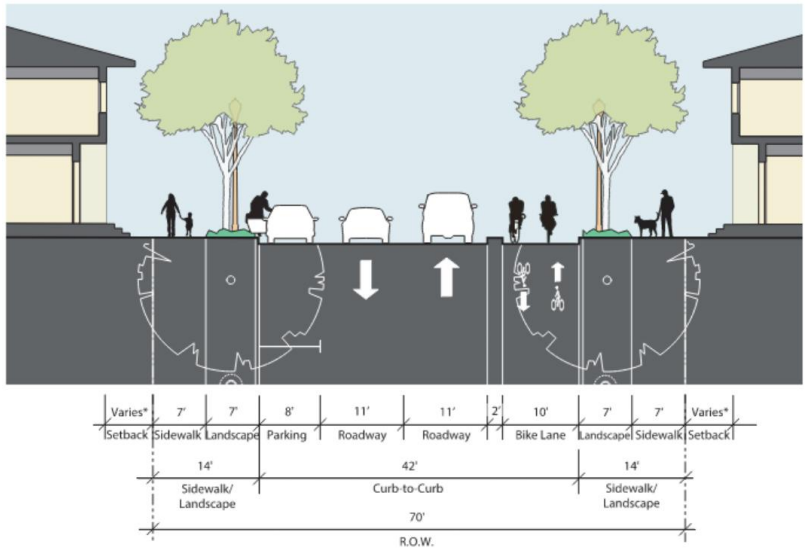
Loyola Lane and Dwy O/Wilmington Drive	Construct and stripe southbound approach to prove one left-turn lane and one through/right-turn lane	*
	Installation of a traffic signal when warrants are met	$ 360,000



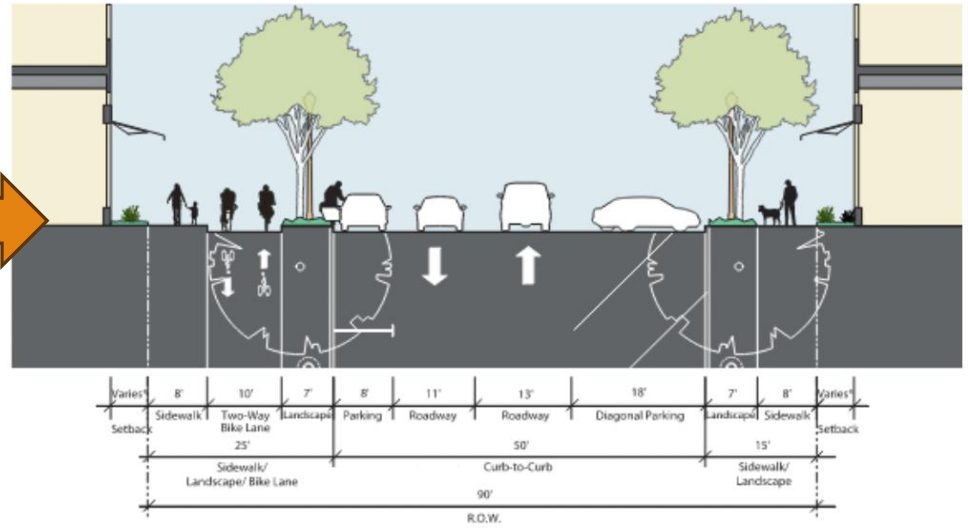
Colony Loop Drive

Colony Loop Drive Roadway Cost = $2 Million

Case Study – Mitigations

Colony Park TIA Update - Cost Estimates for City Required Improvements

Name	Improvement	Improvement Cost
Roadway		
Colony Loop Drive Construction	Design and construct the missing Colony Loop section from Overton Elementary School to Valleyfield Drive	*
Wilmington Drive Construction	Design and construct Wilmington Dr from Loyola Lane to Colony Loop Drive	*
Loyola Lane and Decker Lane	Construction of a southbound right-turn lane on Decker Lane (800-foot storage, 30-foot taper)	$ 503,000
	Construction of a westbound right-turn lane on Decker Lake Road (625-foot storage, 30-foot taper)	$ 342,000
	Signal timing optimization	$ 5,000
Loyola Lane and Colony Park Drive	Restriping of approach to provide a southbound right-turn lane on Colony Park Drive (270-foot storage, 30-foot taper)	$ 10,000
Loyola Lane and Colony Loop Drive/Cielo Vista Drive	Restriping of approach to provide a southbound right-turn lane on Colony Loop Drive (345-foot storage, 30-foot taper)	$ 10,000
	Installation of a traffic signal when warrants are met	$ 480,000
Loyola Lane and Wentworth Drive	Restriping of approach to provide a southbound right-turn lane on Wentworth Drive (170-foot storage, 30-foot taper).	$ 10,000
Decker Lane and Colony Loop Drive	Restriping of approach to provide an eastbound left-turn and right-turn lane on Colony Loop Drive (100-foot storage, 100-foot taper)	$ 10,000
	Installation of a traffic signal when warrants are met	$ 360,000
Scool/Dwy B and Colony Loop Drive	Restriping of approach to provide a eastbound left-turn lane on Colony Loop Drive (100-foot storage, 100-foot taper)	$ 10,000
Loyola Lane and Dwy O/Wilmington Drive	Construct and stripe southbound approach to prove one left-turn lane and one through/right-turn lane	*
	Installation of a traffic signal when warrants are met	$ 360,000



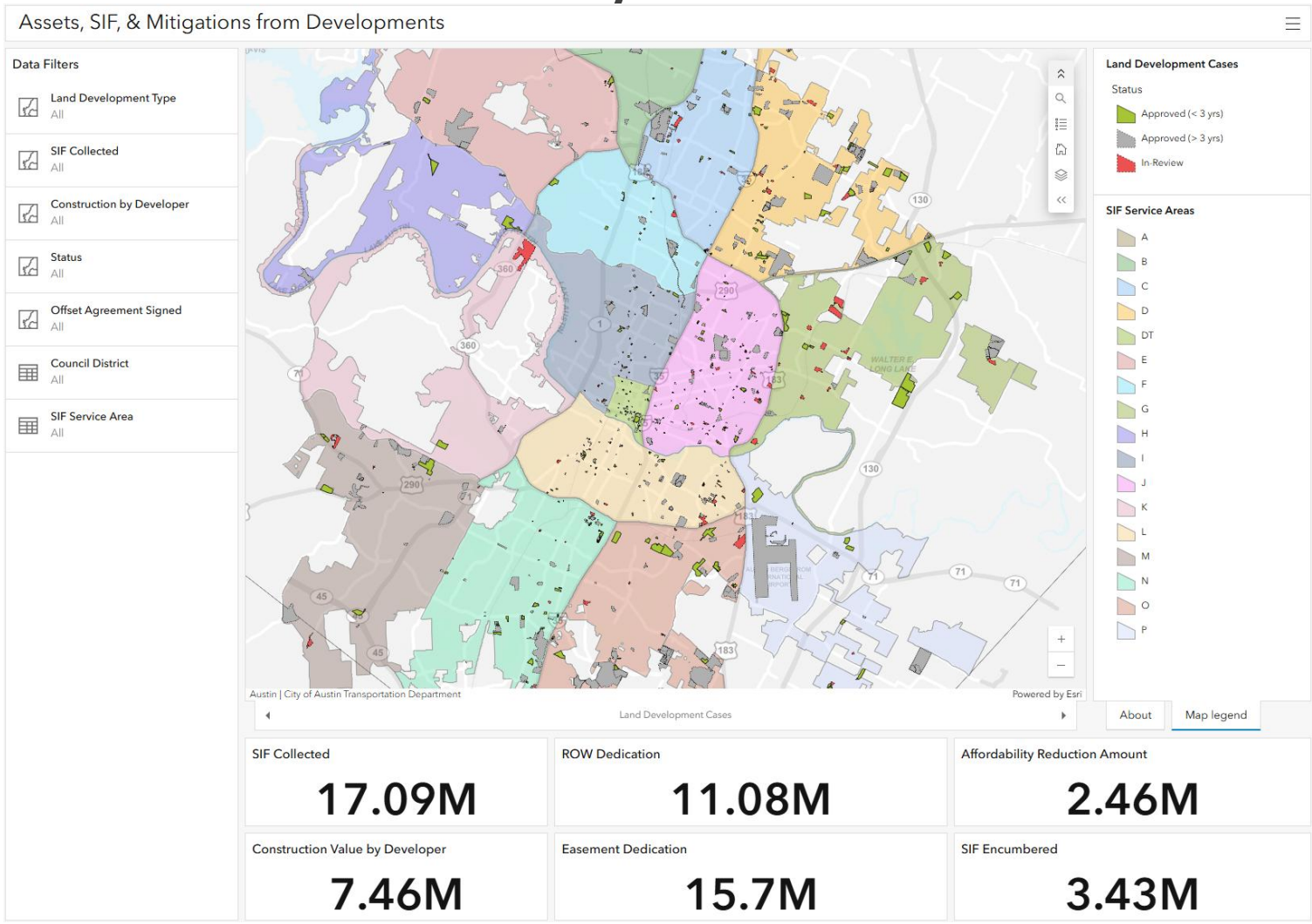
Wilmington Street (Retail Emphasis)

Wilmington Drive Roadway Cost = $1.8 Million

Case Study – Overall Cost

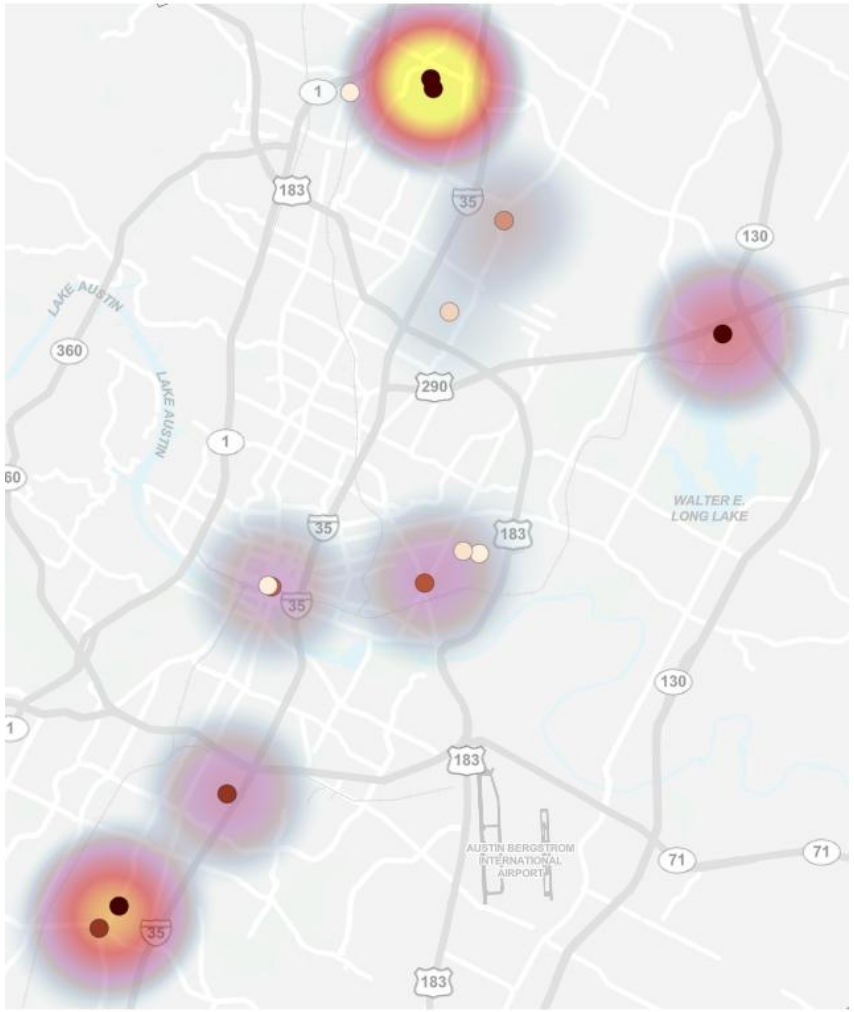
Additionally, right-of-way for multiple roadways shall be dedicated to the City of Austin

SIF Dashboard – City Wide

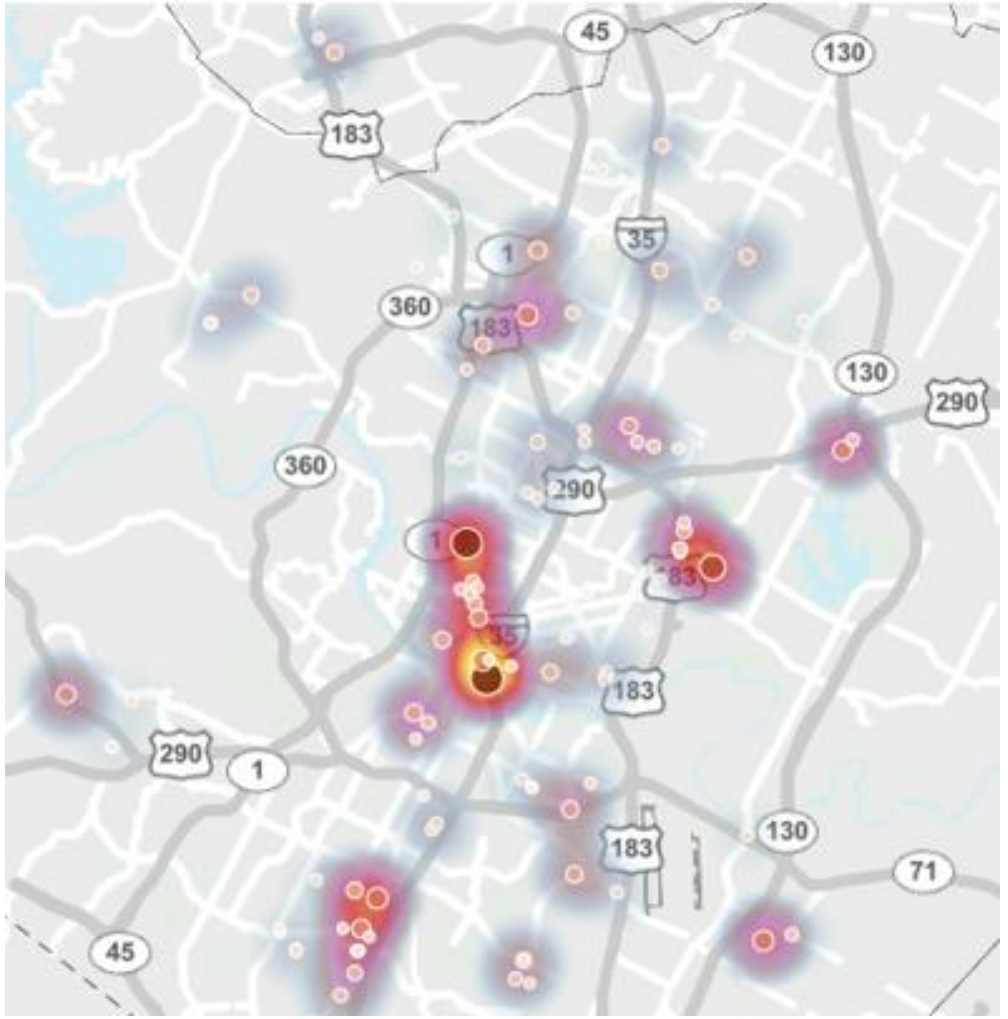


SIF Dashboard – City Wide

Construction by Developer

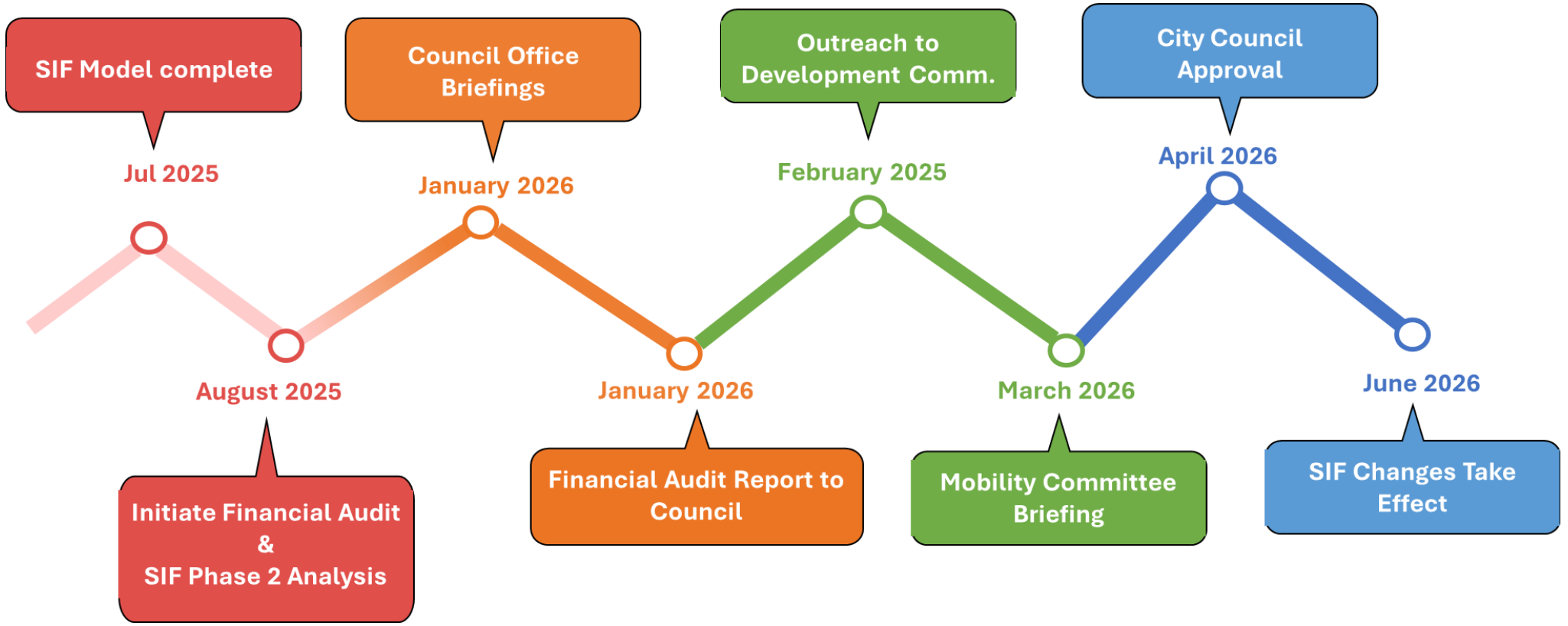


SIF Collected



SIF Update

- To reflect the changing needs of the community and the cost of mobility projects.



SIF – Room for Improvement

- Fee Update Frequency
  - Every 5 years may be too infrequent given construction cost increases and other factors
- Roadway Capacity Plan
  - Ability to incorporate aspects of analysis in real time to become a more dynamic plan
- Transition to new fee
  - Few new applicants surprised by new fee
- Appeal Process
  - Change of building use situations e.g. from low traffic intensity to high traffic intensity within existing building (general office to medical office / retail)
  - Some developers perceive fee as too high
- Public-private partnership development projects
  - Grey area in terms of SIF exemption

Thank You