

TOWN OF

# JOHNSTOWN

## I-25/CO 402 INTERCHANGE FINANCING ANALYSIS



PREPARED BY:



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# **I-25/CO 402 INTERCHANGE FINANCING ANALYSIS**

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## INTRODUCTION

The Colorado Department of Transportation is currently leading reconstruction of Interstate 25 (I-25) between Johnstown and Fort Collins. The project will increase capacity by adding an Express Lane in both directions, replacing four aging bridges, and widening two additional bridges. The project will also improve multimodal access to regional transit to promote mode shift, improve bus service performance by adding new bus slip ramps from I-25 to the new Park-n-Ride at Kendall Parkway, create new pedestrian and bicycle access under I-25 at Kendall Parkway, and construct new bridges over the Cache la Poudre River, allowing for the future completion of the regional trail. The project is expected to be completed in 2021 with the total cost estimated at \$302 million.

As part of the project, the I-25/Colorado (CO) 402 interchange will be reconstructed, with completion scheduled by the end of 2019. Reconstruction will improve the safety of the interchange by smoothing out the curves, both horizontally and vertically, adding pedestrian and bike facilities to allow safe crossings of I-25, modernize the aging infrastructure, and increase interchange capacity to accommodate the continuing population growth in the Loveland and Johnstown area.

The Town of Johnstown has committed \$7 million toward the I-25/CO 402 interchange reconstruction project. The Town engaged Felsburg Holt & Ullevig (FHU) to evaluate a potential impact fee that could be assessed on future development in Johnstown that will benefit from the improved interchange. This impact fee would allow the Town to recoup an appropriate portion of the committed \$7 million Johnstown share of the cost of the planned interchange improvement project. This study provides forecasts of development in Johnstown, analysis of the contribution of development in various parts of Johnstown to the interchange, and a basis for an interchange impact fee for new Johnstown development that will benefit from improvements to the I-25/CO 402 interchange.

## DEVELOPMENT FORECASTS

A key foundation for analyzing funding options is developing reasonable growth forecasts for areas that generate traffic using the interchange. The North Front Range Metropolitan Planning Organization (NFRMPO) regional model was used as a basis for forecasting. The regional model includes 2015 base year, and 2030 and 2040 model years. The regional model includes household and employment data and forecasts for the entire North Front Range region, using a transportation analysis zone (TAZ) system.

A study area was defined encompassing the part of Johnstown and the Town’s Growth Management Area judged to be within the influence area of the I-25/CO 402 interchange. **Figure I** shows the model TAZs that are in the study area, consisting of Johnstown limits or the Town’s Growth Management Area between CO 60/Larimer County Road 14 (LCR 14) on the south and US 34 on the north.

Johnstown’s own development expectations for 2030 and 2040 were established and used to replace NFRMPO forecasts for Johnstown’s TAZs. Johnstown’s Director of Planning and Development established forecasts of development types and magnitudes anticipated by 2030 and by 2040 based on current development activity and development trends. Town forecasts by acreage and general development types had to be translated into the household and employment data that is used in the regional travel model.

**Table I** shows the key assumptions that were used for this translation, including the mix of employment types for different general land use category, average density as measured by dwelling units/acre or floor area ratio (building area as a percentage of total land area), and average building square footage per employee.

**Table I. Development Types and Density Assumptions**

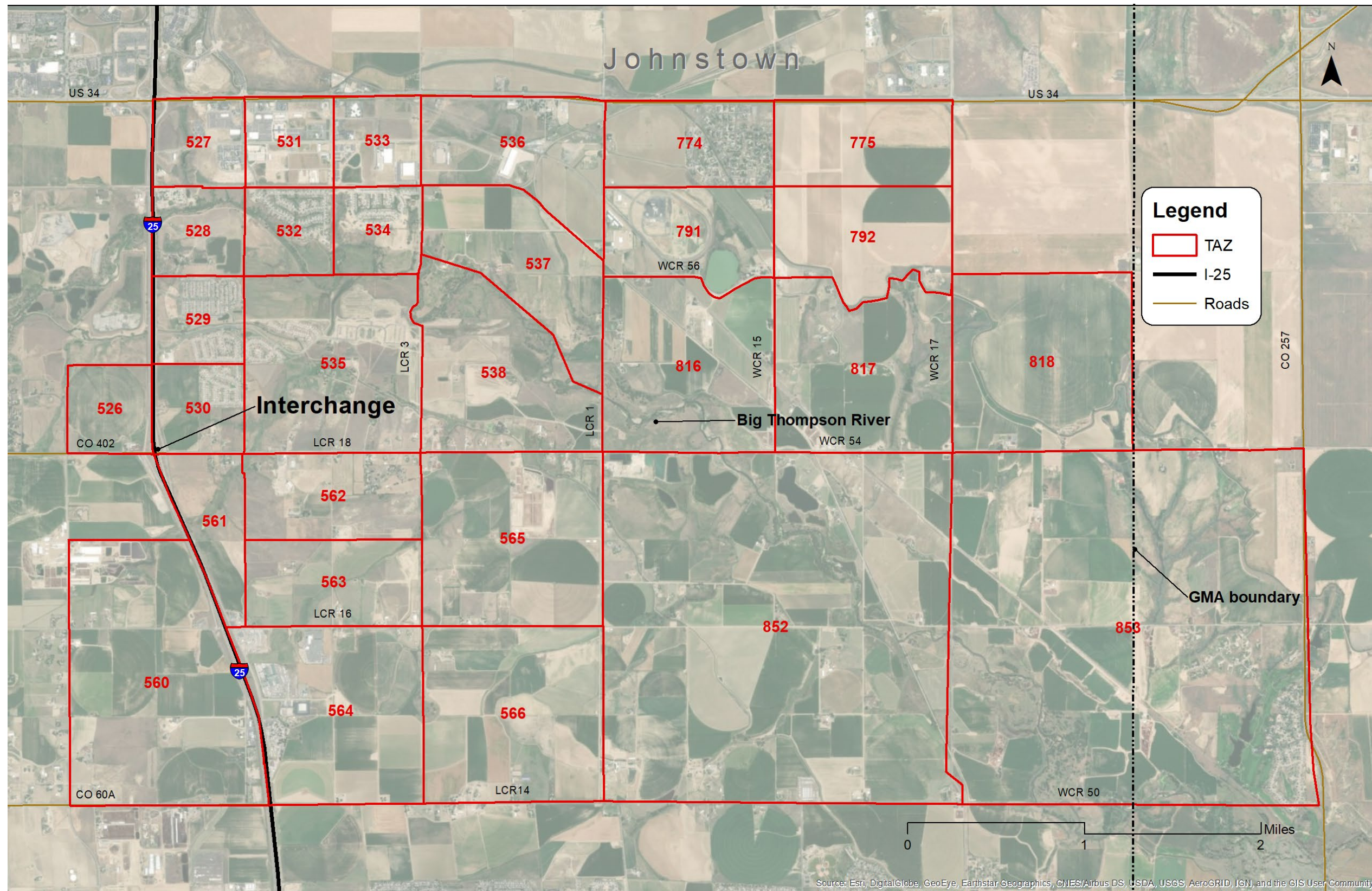
Land Use Type	Employment Category				Total
	Retail	Service	Base	Medical	
Commercial	0.5	0.5	0		1.00
Commercial/Employment	0.25	0.75	0		1.00
Commercial/LightIndustrial	0.1	0.4	0.5		1.00
LightIndustrial/Employment	0	0.5	0.5		1.00
Commercial/Retail	0.5	0.5	0		1.00
Commercial/Office	0.25	0.75	0		1.00
MixedUse	0.25	0.75	0		1.00
<b>Single Family Density</b>	3 per acre				
<b>Multi-Family Density</b>	15 per acre				
<b>FAR (Bldg/Land Area)</b>	0.2	0.2	0.1		-
<b>Density (ft2/Employee)</b>	500	300	1000		-

*Note: Values are based on information from the city and on industry standards*

**Table 2** shows the expected residential units and the acres of development by TAZ for different land use categories provided by the Town, along with the resulting employment by category based on the assumptions provided in **Table I**. The employment results are displayed for three employment categories used in the regional model: Retail, Service (primarily office employment) and Base (industrial and agricultural employment). There were no forecasts provided for Medical employment, the fourth category used in the model.



Figure I. Study Area





**Table 2. Household and Employment Calculations Based on Johnstown Development Forecasts by Land Use Type**

TAZ		Households				Commercial				Commercial/Employment				Commercial/Light Industrial						Light Industrial/Employment											
Total Area		Single Family (DU)		Multi-Family (DU)		Area (Acres)		Retail Emp		Service Emp		Area (Acres)		Retail Emp		Service Emp		Base Emp		Area (Acres)		Service Emp		Base Emp							
#	Acres	2030	2040	2030	2040	2030	2040	2030	2040	2030	2040	2030	2040	2030	2040	2030	2040	2030	2040	2030	2040	2030	2040	2030	2040						
526	153	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
527	170	-	-	228	228	15	15	131	131	218	218	-	-	-	-	-	-	4	4	7	7	46	46	9	9	-	-				
528	168	-	240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
529	166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
530	172	94	94	200	200	25	25	218	218	363	363	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
531	166	-	-	-	-	-	-	-	-	-	-	40	40	174	174	871	871	-	-	-	-	-	-	-	-	-	-				
532	161	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
533	161	-	-	240	240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.76	16.76					
534	159	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
535	641	1,900	1,900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
536	402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	180	180					
537	399	-	250	-	240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
538	533	250	250	-	-	-	8	-	70	-	116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
560	929	-	1,280	-	-	-	-	-	-	-	-	-	160	-	697	-	3,485	-	-	-	-	-	-	-	-	-	-				
561	196	-	-	-	-	-	-	-	-	-	-	32	32	139	139	697	697	-	-	-	-	-	-	-	-	-					
562	314	300	300	400	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
563	313	-	700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
564	622	700	700	120	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
565	644	-	1,350	-	-	-	8	-	70	-	116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
566	653	-	1,250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
774	301	-	-	-	-	15	15	131	131	218	218	-	-	-	-	-	-	-	-	-	-	-	-	-	70	70					
775	315	-	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60	-	105	-	697	-	131	-					
791	329	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
792	367	-	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
816	604	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
817	601	-	390	-	-	-	15	-	131	-	218	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
818	656	-	400	-	-	-	15	-	131	-	218	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
852	2,494	-	950	-	200	-	15	-	131	-	218	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
853	2,606	-	-	-	-	-	15	-	131	-	218	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
<b>TOTAL</b>	<b>15,397</b>	<b>3,244</b>	<b>10,564</b>	<b>1,188</b>	<b>1,628</b>	<b>55</b>	<b>131</b>	<b>480</b>	<b>1,144</b>	<b>799</b>	<b>1,903</b>	<b>72</b>	<b>232</b>	<b>313</b>	<b>1,010</b>	<b>1,568</b>	<b>5,053</b>	<b>4</b>	<b>64</b>	<b>7</b>	<b>112</b>	<b>46</b>	<b>743</b>	<b>9</b>	<b>140</b>	<b>267</b>	<b>267</b>	<b>3,873</b>	<b>3,873</b>	<b>581</b>	<b>581</b>

Note: Forecasts based on provided development assumptions for each TAZ. See Table 3 for Household and Employment (growth) totals

**Table 3** provides a summary of forecasted development between now and 2030 and 2040 for the Johnstown growth management area. Households include single family and multi-family residences and employment is shown by retail, service, and base employment types.

These development assumptions were added to the NFRMPO model's base year (2015) demographic data to develop total 2030 and 2040 forecasts, as shown on **Table 4**. Forecasts show more than a tripling of both households and employment anticipated by 2030 compared with 2015 base year data. Additional growth between 2030 and 2040 is expected to be approximately 130 percent for households and 65 percent for employment.

One complicating factor in the forecasting process is the fact that the regional model's base year is 2015 and there is no dataset available with current (2019) household and employment data. For traffic forecasting exercises described later in the report, it was necessary to estimate the growth that has occurred between 2015 and 2019. This was done using aerial photography and comparing estimated existing demographics to the 2015 data set. The 2019 estimates shown on **Table 4** result in an average (households and employment) estimate that 7.2 percent of the projected 2015 to 2030 growth has already taken place. The 2030 and 2040 calculated growth rate is also shown at the bottom of the table.



**Table 3. New Household and Employment Growth Forecasts by TAZ**

TAZ	Households				Employment						Total Growth by year			
	Single Family		Multi-Family		Retail Emp		Service Emp		Base Emp		2019 - 2030		2019 - 2040	
Johnstown											HH	EMP	HH	EMP
#	2030	2040	2030	2040	2030	2040	2030	2040	2030	2040				
526	-	-	-	-	-	-	-	-	-	-	-	-	-	-
527	-	-	228	228	138	138	264	264	9	9	228	411	228	411
528	-	240	-	-	-	-	-	-	-	-	-	-	240	-
529	-	-	-	-	-	-	-	-	-	-	-	-	-	-
530	94	94	200	200	218	218	363	363	-	-	294	581	294	581
531	-	-	-	-	174	174	871	871	-	-	-	1,045	-	1,045
532	-	60	-	-	-	-	-	-	-	-	-	-	60	-
533	-	-	240	240	-	-	243	243	37	37	240	280	240	280
534	-	50	-	-	-	-	-	-	-	-	-	-	50	-
535	1,900	1,900	-	-	-	-	-	-	-	-	1,900	-	1,900	-
536	-	-	-	-	-	-	2,614	2,614	392	392	-	3,006	-	3,006
537	-	250	-	240	-	-	-	-	-	-	-	-	490	-
538	250	250	-	-	-	70	-	116	-	-	250	-	250	186
560	-	1,280	-	-	-	697	-	3,485	-	-	-	-	1,280	4,182
561	-	-	-	-	139	139	697	697	-	-	-	836	-	836
562	300	300	400	400	-	-	-	-	-	-	700	-	700	-
563	-	700	-	-	-	-	-	-	-	-	-	-	700	-
564	700	700	120	120	-	-	-	-	-	-	820	-	820	-
565	-	1,350	-	-	-	70	-	116	-	-	-	-	1,350	186
566	-	1,250	-	-	-	-	-	-	-	-	-	-	1,250	-
774	-	-	-	-	131	131	1,234	1,234	152	152	-	1,517	-	1,517
775	-	200	-	-	-	105	-	697	-	131	-	-	200	933
791	-	-	-	-	-	-	-	-	-	-	-	-	-	-
792	-	200	-	-	-	-	-	-	-	-	-	-	200	-
816	-	-	-	-	-	-	-	-	-	-	-	-	-	-
817	-	390	-	-	-	131	-	218	-	-	-	-	390	349
818	-	400	-	-	-	131	-	218	-	-	-	-	400	349
852	-	950	-	200	-	131	-	218	-	-	-	-	1,150	349
853	-	-	-	-	-	131	-	218	-	-	-	-	-	349
<b>TOTAL</b>	<b>3,244</b>	<b>10,564</b>	<b>1,188</b>	<b>1,628</b>	<b>800</b>	<b>2,266</b>	<b>6,286</b>	<b>11,572</b>	<b>590</b>	<b>721</b>	<b>4,432</b>	<b>7,676</b>	<b>12,192</b>	<b>14,559</b>

Note: Total growth forecasts by land use type and by year

**Table 4. Total Household and Employment Forecasts by TAZ**

TAZ	2015 (from Model)		Estimated Growth '15-'19		2019		Estimated Growth '19-'30		2030		Estimated Growth '19-'40		2040	
	#	HH	EMP	HH	EMP	HH	EMP	HH	EMP	HH	EMP	HH	EMP	HH
526	0	11	0	0	0	11	0	0	0	11	0	0	0	11
527	128	206	175	138	303	344	228	411	531	755	228	411	531	755
528	144	36	0	0	144	36	0	0	144	36	240	0	384	36
529	144	36	50	25	194	61	0	0	194	61	0	0	194	61
530	10	19	75	0	85	19	294	581	379	600	294	581	379	600
531	33	480	0	300	33	780	0	1045	33	1825	0	1045	33	1825
532	78	61	0	0	78	61	0	0	78	61	60	0	138	61
533	29	387	0	150	29	537	240	280	269	817	240	280	269	817
534	30	49	100	0	130	49	0	0	130	49	50	0	180	49
535	193	124	150	0	343	124	1900	0	2243	124	1900	0	2243	124
536	33	289	0	0	33	289	0	3006	33	3295	0	3006	33	3295
537	14	136	0	0	14	136	0	0	14	136	490	0	504	136
538	16	31	0	0	16	31	250	0	266	31	250	186	266	217
560	22	143	3	20	25	163	0	0	25	163	1280	4182	1305	4345
561	4	11	0	0	4	11	0	836	4	847	0	836	4	847
562	10	12	0	0	10	12	700	0	710	12	700	0	710	12
563	10	12	0	20	10	32	0	0	10	32	700	0	710	32
564	32	282	0	40	32	322	820	0	852	322	820	0	852	322
565	28	5	0	20	28	25	0	0	28	25	1350	186	1378	211
566	11	14	0	0	11	14	0	0	11	14	1250	0	1261	14
774	57	8	0	0	57	8	0	1517	57	1525	0	1517	57	1525
775	4	102	0	0	4	102	0	0	4	102	200	933	204	1035
791	57	8	0	50	57	58	0	0	57	58	0	0	57	58
792	0	0	0	0	0	0	0	0	0	0	200	0	200	0
816	12	74	0	5	12	79	0	0	12	79	0	0	12	79
817	33	45	0	0	33	45	0	0	33	45	390	349	423	394
818	71	69	0	0	71	69	0	0	71	69	400	349	471	418
852	2	0	0	5	2	5	0	0	2	5	1150	349	1152	354
853	269	233	0	0	269	233	0	0	269	233	0	349	269	582
<b>TOTAL</b>	<b>1,470</b>	<b>2,881</b>	<b>553</b>	<b>773</b>	<b>2,023</b>	<b>3,654</b>	<b>4,432</b>	<b>7,676</b>	<b>6,455</b>	<b>11,330</b>	<b>12,192</b>	<b>14,559</b>	<b>14,215</b>	<b>18,213</b>

Note: 2015 values are based on the North Front Range MPO model, adjusted to Johnstown's TAZs areas. Growth '15-'19' are estimated values based on satellite imagery. 2030 and 2040 are calculated based on forecasted growth values (Table 3) + estimated 2019 values

Growth Rate	-	-	-	-	8.3%	6.1%	-	-	11.1%	10.8%	-	-	9.7%	7.9%
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Note: 2019 Growth Rate (compound annual growth rate) is based on year 2015. 2030 and 2040 growth rate is based on year 2019.

## TRAFFIC FORECASTS

The base year, 2030 and 2040 regional travel models, with Johnstown development forecasts as described in the previous section, were used to prepare traffic forecasts for the I-25/CO 402 interchange. **Table 5** documents the results of the forecasting. All data shown represent daily traffic volumes.

Following are descriptions of various data provided on **Table 5**:

- Total Trips – The Total Trips columns represent the total number of daily vehicle trips generated by each TAZ, including trips in and out of the TAZ.
- Ramp Trips – The Ramp Trips columns represent the number of daily trips to and from each TAZ that use the I-25/CO 402 interchange, specifically using one of the four interchange ramps.
- % - The % columns show the percentage of all TAZ trips that use the I-25/CO 402 interchange.
- Ranking of TAZs by Interchange Use – TAZs are ranked in descending order by the percentage of total TAZ traffic that uses the interchange. Development in the TAZs with the highest percentage of interchange use are judged to receive the most benefit of interchange improvements.
- Tier 1 and Tier 2 TAZs – TAZs that are estimated to have more than 17 percent of total trips using interchange ramps in 2030 are designated as Tier 1 TAZs. Other TAZs that are estimated to have more than 7 percent of total trips using the interchange ramps in 2030 are designated as Tier 2 TAZs.
- Tier 1 and Tier 2 Averages – The bottom rows of the table show 1<sup>st</sup> Tier and 2<sup>nd</sup> Tier totals. It shows that the average percentage of trips using the interchange for Tier 1 TAZs is 27 percent and the average for Tier 2 TAZs is 11 percent, so the average Tier 1 percentage is approximately 2.5 times as great for Tier 1 compared with Tier 2. This ratio will be used later in the report to establish an equitable fee level for Tier 1 versus Tier 2 areas.
- TAZ 816 Special Treatment – TAZ 816 overall showed a relatively low percentage of traffic using the interchange; however, it was judged that the low percentage applies to the portion of the TAZ that is north of the Big Thompson River and is therefore oriented to the north. The portion of TAZ 816 south of the Big Thompson River is expected to have traffic more oriented to the south toward WCR 54/CO 402 so that portion of the TAZ is being treated as a Tier 2 area.

**Table 6** provides a summary of the forecasted trips using the I-25/CO 402 interchange and the proportion of those trips starting or ending in Johnstown zones.

- The Interchange Total Trips column provides the model's forecasts of interchange trips, which are the sum of the daily traffic volumes on the four interchange ramps. Total interchange trips are shown for 2019 (2015 model adjusted for estimated 2015 to 2019 growth), 2030, 2040, and growth between 2019 and 2030 and between 2019 and 2040.
- The Total Johnstown Trips column shows the number of trips and percentage of total interchange trips that are to or from the 29 TAZs that comprise the Johnstown study area as shown on **Figure 1**. Johnstown TAZs are estimated to account for 15 percent of 2019 interchange traffic, increasing to 40 percent in 2030 and 44 percent in 2040. This increase is a result of sharper development growth projected for Johnstown compared to Loveland and other areas that feed the interchange.
- The 1<sup>st</sup> Tier and 2<sup>nd</sup> Tier columns show the percentage of total interchange traffic estimated to begin or end in the TAZs in the 1<sup>st</sup> and 2<sup>nd</sup> Tier influence zones as shown on **Figure 2**.



Table 5. Total Daily Trips and Trips Using I-25/CO 402 Interchange

TAZ	Tiers		2015			2019			2030			Growth Trips (2019 - 2030)		2040			Growth Trips (2019-2040)	
	#	1 <sup>st</sup>	2 <sup>nd</sup>	Ramp trips	%	Total trips	Ramp trips	%	Total trips	Ramp trips	%	Total trips	Ramp trips	Total Trips	Ramp trips	%	Total trips	Ramp trips
526	*		10	56%	18	13	54%	24	9	53%	17	0	0	60	32%	185	47	161
562	*		127	43%	295	168	43%	390	2,108	40%	5,285	1,940	4,895	2,210	33%	6,769	2,042	6,379
530	*		22	47%	47	29	47%	62	2,047	37%	5,539	2,018	5,477	2,109	27%	7,809	2,080	7,747
561	*		41	45%	91	54	45%	120	1,149	35%	3,260	1,095	3,140	1,140	24%	4,778	1,086	4,658
529	*		729	30%	2,415	963	30%	3,191	704	21%	3,337	0	146	450	14%	3,320	0	129
535	*		37	29%	129	49	29%	170	2,971	19%	15,815	2,922	15,645	2,811	14%	19,982	2,762	19,812
538	*		23	31%	74	30	31%	98	261	18%	1,452	231	1,354	351	12%	2,998	321	2,900
818	**		82	22%	369	108	22%	488	52	14%	375	0	0	1,144	11%	10,701	1,036	10,213
563	**		9	23%	39	12	23%	52	5	13%	38	0	0	548	11%	5,144	536	5,092
565	**		19	22%	87	25	22%	115	11	13%	86	0	0	1,111	11%	10,309	1,086	10,194
564	**		719	17%	4,153	950	17%	5,488	1,057	12%	8,667	107	3,179	978	9%	10,831	28	5,343
817	**		8	20%	41	11	20%	54	5	12%	42	0	0	256	5%	4,924	245	4,870
560	**		54	12%	436	71	12%	576	51	11%	456	0	0	2,214	7%	31,055	2,143	30,479
852	**		4	15%	26	5	15%	34	3	12%	26	0	0	217	4%	5,221	212	5,187
528	**		4	12%	34	5	11%	45	3	9%	35	0	0	184	8%	2,431	179	2,386
566	**		9	18%	51	12	18%	67	5	10%	51	0	0	710	6%	11,651	698	11,584
527	**		52	7%	748	69	7%	988	463	8%	5,543	394	4,555	350	6%	5,939	281	4,951
853			131	9%	1,484	173	9%	1,961	86	6%	1,537	0	0	79	2%	4,163	0	2,202
531			133	6%	2,259	176	6%	2,985	411	5%	7,500	235	4,515	200	2%	8,550	24	5,565
533			55	6%	956	73	6%	1,263	123	3%	4,323	50	3,060	52	1%	4,641	0	3,378
534			2	5%	41	3	6%	54	2	4%	54	0	0	11	2%	592	8	538
532			26	5%	522	34	5%	690	19	3%	713	0	23	19	1%	1,478	0	788
816	**		5	4%	116	7	5%	153	3	3%	119	0	0	2	1%	142	0	0
537			2	5%	44	3	5%	58	1	2%	44	0	0	68	2%	4,114	65	4,056
791			2	3%	59	3	4%	78	1	2%	60	0	0	1	1%	71	0	0
792			1	5%	19	1	4%	25	0	0%	19	0	0	13	1%	1,476	12	1,451
774			19	3%	652	25	3%	862	11	2%	658	0	0	58	1%	6,050	33	5,188
536			5	2%	245	7	2%	324	58	1%	7,961	51	7,637	81	1%	9,704	74	9,380
775			0	0%	0	0	0%	0	0	0%	0	0	0	20	0%	6,092	20	6,092
<b>All TAZs</b>			<b>2,330</b>	<b>15%</b>	<b>15,450</b>	<b>3,079</b>	<b>15%</b>	<b>20,415</b>	<b>11,619</b>	<b>16%</b>	<b>73,012</b>	<b>8,540</b>	<b>52,597</b>	<b>17,447</b>	<b>9%</b>	<b>191,120</b>	<b>14,368</b>	<b>170,705</b>

Note: 2019 trips are based on 2015 model values plus same estimated growth rate as of development from 2015 to 2019 (from Table 4). 2030 and 2040 come from development values applied to the NFR MPO model.

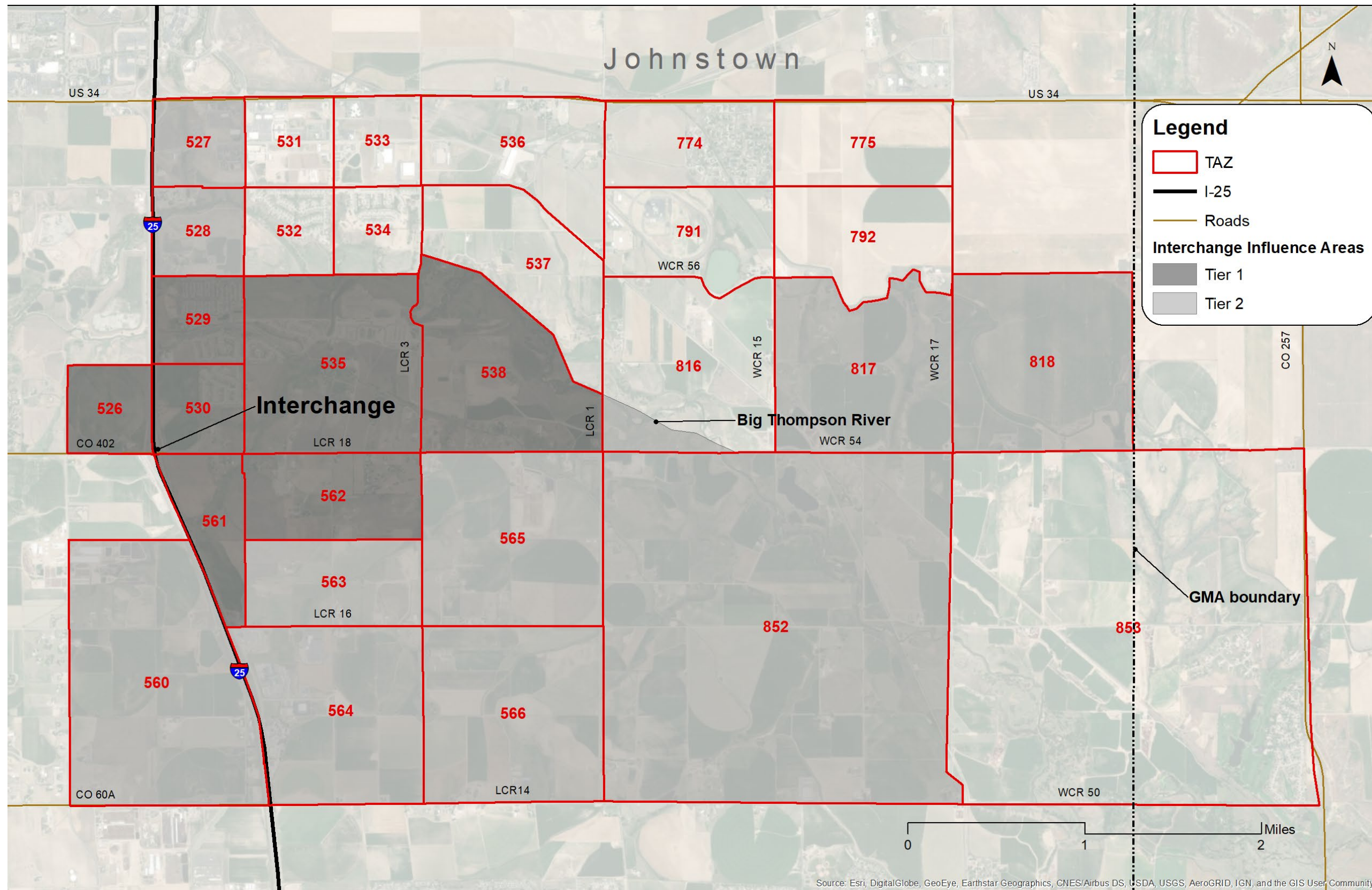
<b>1st Tier</b>	*	<b>989</b>	<b>32%</b>	<b>3,069</b>	<b>1,306</b>	<b>32%</b>	<b>4,055</b>	<b>9,249</b>	<b>27%</b>	<b>34,705</b>	<b>7,943</b>	<b>30,650</b>	<b>9,131</b>	<b>20%</b>	<b>45,983</b>	<b>7,825</b>	<b>41,928</b>
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Note: Based on TAZ's with highest 2030 ramp trips ratio (> 17%).

<b>2nd Tier</b>	**	<b>960</b>	<b>16%</b>	<b>5,984</b>	<b>1,275</b>	<b>16%</b>	<b>8,060</b>	<b>1,658</b>	<b>11%</b>	<b>15,438</b>	<b>383</b>	<b>7,378</b>	<b>7,714</b>	<b>8%</b>	<b>98,348</b>	<b>6,439</b>	<b>90,288</b>
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Note: Based on TAZ's with 2030 ramp trips ratio between 7% and 17%. It includes part of TAZ 816 since its southernmost section development would be in the influence area.

Figure 2. Interchange Influence Areas



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**Table 6. I-25/CO 402 Interchange Trips and Sources**

	Interchange Total Trips	% of total	Total Johnstown Trips	% of total	1st Tier ( >17% )	% of total	2nd Tier (17% > x > 7%)	% of total
<b>2019</b>	19,908	100%	3,079	15%	1,306	6.6%	1,275	6%
<b>2030</b>	28,824	100%	11,619	40%	9,249	32%	1,658	6%
2019 - 2030 Growth	8,916	100%	8,540	96%	7,943	89%	383	4%
<b>2040</b>	39,293	100%	17,447	44%	9,131	23%	7,714	20%
2019 - 2040 Growth	19,385	100%	14,368	74%	7,825	40%	6,439	33%

Note: Interchange Total (Ramps) Trips uses the North Front Range MPO (model). "% of total" refers Interchange Total Trips.

Using interchange trip data shown in **Table 6**, **Table 7** provides a calculation of the fair share of Johnstown’s committed contribution to the interchange that can be attributed to growth in Johnstown’s 2-tier interchange influence area. It shows that the total Johnstown study area’s 2030 contribution to interchange traffic is an estimated 11,619 daily trips. The interchange traffic attributable to projected growth in the Tier 1 plus Tier 2 influence area is an estimated 8,326 daily trips, or 72 percent of the Johnstown study area total. This 72 percent will be applied to the \$7 million Johnstown commitment to the interchange to obtain a **\$5,040,000 target for Johnstown influence area impact fees**.

**Table 7. Johnstown Influence Area Growth as a Percent of Total 2030 Johnstown Interchange Trips**

Tier 1 Daily Trips (2019 - 2030 Growth)	7,943
Tier 2 Daily Trips (2019 - 2030 Growth)	383
<b>Tier 1 + 2 Daily Trips (2019 - 2030 Growth)</b>	<b>8,326</b>

<b>Total Johnstown Daily Trips - 2030</b>	<b>11,619</b>
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<b>Tier 1 + 2 Growth Trips as % of Total Johnstown 2030 Trips</b>	<b>72%</b>
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Note: Tier 1 and 2 data trips (2030) come from table 6



## IMPACT FEES

To develop an impact fee, a service unit needs to be established as a basis for assessing equitable fees on different development types. Daily trip generation was selected as the appropriate service unit. **Table 8** provides factors and rates used to translate residential units and employment forecasts into new daily trips for use as the service unit.

**Table 8. Daily Trip Generation by Land Use Type**

	Single Family	Multi-Family	Retail Shopping	Service (Office)	Base (Industrial )
Density (ft <sup>2</sup> /Employee)	-	-	500	300	1000

Note: Densities of ft<sup>2</sup>/employee are typical industry standards

Unit	DU	DU	1,000 ft2	1,000 ft2	1,000 ft2
Daily Trip	9.44	7.32	37.75	9.74	4.96
Trip Factor	100%	100%	64%	100%	100%
New Daily Trip	9.44	7.32	24.16	9.74	4.96

Note: DU refers to Dwelling Unit

Source: Trip Generation Manual, 10th Edition, Institute of Transportation Engineers

The top part of **Table 8** provides factors to translate the employment forecasts presented earlier into building square footage, which is the measure commonly used for daily trip generation. Trip generation rates per 1,000 square feet of retail, office, and industrial employment, and per single family and multi-family dwelling unit were taken from the Trip Generation Manual, 10<sup>th</sup> Edition (Institute of Transportation Engineers, 2017).

In addition to trip generation rates, the manual provides estimates of the percent of traffic from different uses that represents new trips versus passerby trips where drivers stop on the way between primary destinations. A 64 percent trip factor was used for retail uses to generate a rate for new trips.

**Table 9** applies the **Table 8** trip rates to 2030 forecasts presented earlier and calculates estimated daily trip generation for development forecasted in Tier 1 and Tier 2 influence areas in 2030. Year 2030, rather than 2040, has been selected as the horizon year for the impact fee calculations because development forecasts in this timeframe were deemed by the Town as much more reliable than longer range forecasts to 2040, and because 10 years was judged to be a reasonable timeframe for assessment of fees directed at the interchange improvement.

**Table 10** shows the derivation of the proposed impact fee per trip based on the following parameters as presented above:

- Target fee revenue – \$5,040,000
- 2030 trips generated by new development in Tier 1 – 35,817
- 2030 trips generated by new development in Tier 2 – 11,638
- Target ratio of Tier 1 fee/trip to Tier 2 fee/trip – 2.5

Based on the \$125 fee/trip for Tier 1 and \$50 fee/trip for Tier 2, Table 11 provides a schedule of fees for five common land use types. The estimated revenue from these fees based on the development forecasts presented herein would be approximately \$5.06 million.

**Table 9. Derivation of Impact Fee / Trip**

TAZ	Single Family		Multi-Family		Commercial (Retail/Shopping)			Service (Office)			Base (Industrial)				
	Households (DU)	Daily trips	Households (DU)	Daily trips	Retail Employees	Retail Bldg (ft <sup>2</sup> )	New daily trips	Service Employees	Service Bldg (ft <sup>2</sup> )	Daily trips	Base Employees	Base Bldg (ft <sup>2</sup> )	Daily trips		
526	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
562	300	2,832	400	2,928	-	-	-	-	-	-	-	-	-	-	
530	94	887	200	1,464	218	109,000	2,633	363	108,900	1,061	-	-	-	-	
561	-	-	-	-	139	69,500	1,679	697	209,100	2,037	-	-	-	-	
529	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
535	1,900	17,936	-	-	-	-	-	-	-	-	-	-	-	-	
538	250	2,360	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Tier 1 Total</b>	2,544	24,015	600	4,392	357	178,500	4,313	1,060	318,000	3,097	0	0	0	0	<b>35,817</b>
818	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
563	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
565	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
564	700	6,608	120	878	-	-	-	-	-	-	-	-	-	-	
817	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
560	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
852	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
528	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
566	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
527	-	-	228	1,669	138	69,000	1,667	264	79,200	771	9	9,000	45		
816	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Tier 2 Total</b>	700	6,608	348	2,547	138	69,000	1,667	264	79,200	771	9	9,000	45	45	<b>11,638</b>

Note: 2030 forecasted development comes from table 4, and selected Tier 1 and 2 TAZs come from selected impact areas based on % from table 5

**Table 10. 2030 Johnstown Development and Trip Generation**

Tier 1 and 2 Growth Impact (%)	Target Impact Fee Revenue	Tier 1 Total Daily Trip Generation	Tier 2 Total Daily Trip Generation	Ratio of Tier 1 Fee per Trip/ Tier 2 Fee per Trip	Tier 1 - Fee per Trip	Tier 2 - Fee per Trip
72%	\$ 5,040,000	35,817	11,638	2.5	\$ 125	\$ 50

Note: Tier 1 and 2 daily trips data comes from table 9. Target Impact based on (Table 7)

<b>Total Committed</b>	<b>\$7,000,000</b>
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**Table 11. Schedule of Fees**

Use	Unit	New Daily Trip/unit	Tier 1 Zone		Tier 2 Zone	
			Cost/trip	Fee/Unit	Cost/trip	Fee/Unit
Single Family Residential	DU	9.44	\$ 125	\$ 1,180	\$ 50	\$ 472
Multi-Family Residential	DU	7.32	\$ 125	\$ 915	\$ 50	\$ 366
Office	1,000 SF	9.74	\$ 125	\$ 1,218	\$ 50	\$ 487
Retail	1,000 SF	24.16	\$ 125	\$ 3,020	\$ 50	\$ 1,208
Industrial	1,000 SF	4.96	\$ 125	\$ 620	\$ 50	\$ 248

Note: Cost per trip comes from table 10. New Daily trips per unit comes from the Generation Manual, 10th Edition, ITE.





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