APPENDIX A

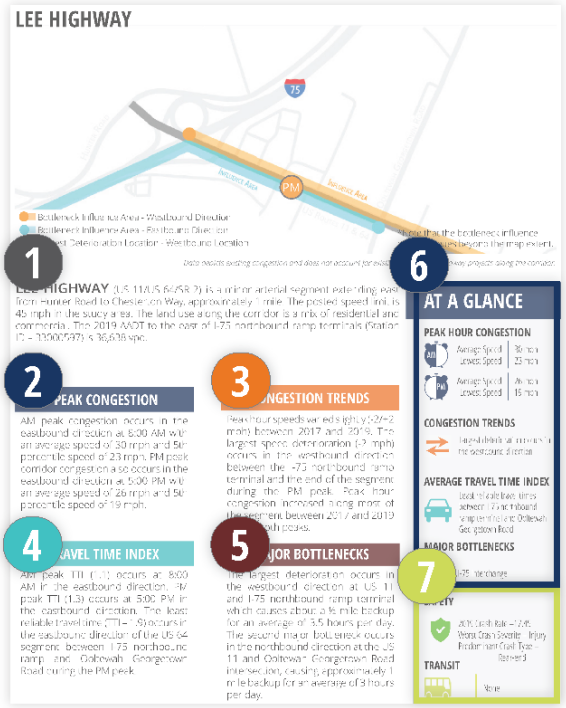
Chattanooga

Tables

Figures

Corridor Cut Sheets

Figure A-1. Corridor Overview Reference Guide



1. CORRIDOR OVERVIEW

A brief description of each corridor's roadway function, regional connectivity, and land use context is provided, highlighting the geographic location where the highest volumes are observed. The 2019 average annual daily traffic volume is reported for each corridor.
Source: TDOT 2019

2. PEAK CONGESTION/PEAK HOUR OPERATIONS

Average and 95th percentile vehicle speeds during AM and PM peak periods are provided for the corridor segment. Locations experiencing the worst congestion are shown on the map. For spot locations, LOS and seconds of delay are reported.
Source: INRIX 2019

3. CONGESTION TRENDS/PEAK HOUR CONGESTION

The change in vehicle speeds during peak periods between 2017 and 2019 is described. The location with the largest speed deterioration is highlighted.
Source: INRIX 2017, 2019

4. TRAVEL TIME INDEX

The average travel time index during AM and PM peak periods is documented for the entire corridor. The most unreliable segments (where the travel time indices are highest) are highlighted.
Source: INRIX 2019

5. MAJOR BOTTLENECKS

The corridor's worst bottleneck during a 5-month period is reported and shown on the map.
Source: INRIX 2019

6. "AT A GLANCE" CONGESTION SNAPSHOT

The detailed data on existing congestion issues is summarized in the sidebar of each page, with information on vehicle speeds, bottleneck locations, and travel time reliability.
Source: INRIX 2019

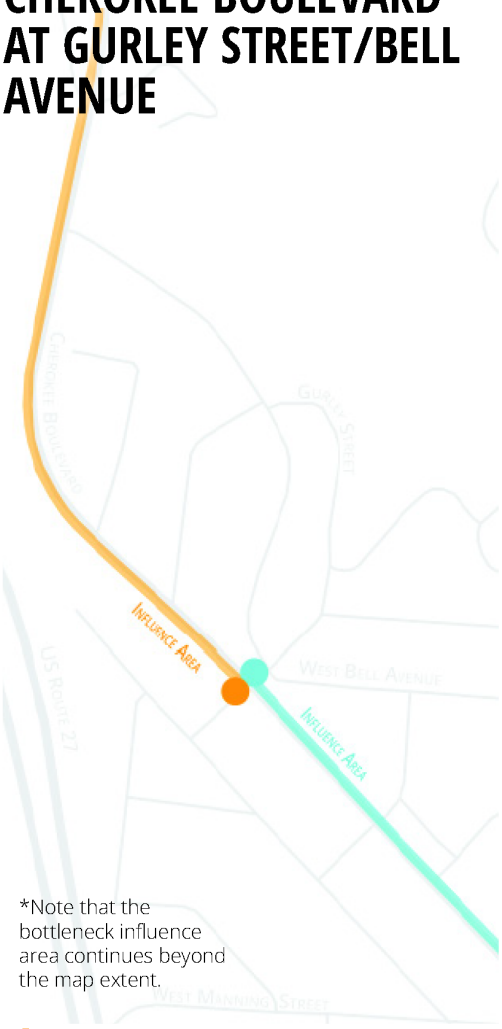
7. MULTIMODAL SNAPSHOT

The presence of fixed route and regional transit service is indicated along with the route number(s). The 2019 crash rate is reported, and a description of the segment's most predominant crash type and crash severity are included. For spot locations, intersection attributes (including stop control type) are recorded.
Source: TDOT 2019

Figure A-2. Cherokee Boulevard and Gurley Street/Bell Avenue

CHEROKEE BOULEVARD AT GURLEY STREET/BELL AVENUE

CHEROKEE BOULEVARD AT GURLEY STREET/ BELL AVENUE is a four-legged stop-controlled intersection of Cherokee Boulevard (US 127/SR 8), a major arterial and Gurley Street/ Bell Avenue a local street. The 2019 AADT along Cherokee Boulevard is 15,287 vpd north of the intersection (Station ID 33000180).



*Note that the bottleneck influence area continues beyond the map extent.

Bottleneck Influence Area - Southbound
Bottleneck Influence Area - Northbound

Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

PEAK HOUR OPERATIONS

The intersection operates at LOS C with 23.9 seconds delay in the AM peak and LOS D with 29.2 seconds delay in the PM.

PEAK HOUR CONGESTION

The westbound through movement at this intersection has a maximum 95th percentile queue of 25 feet with a v/c of 0.23 in the AM peak. In the PM peak, the westbound through movement has a maximum 95th percentile queue of 65 feet queue with a v/c of 0.50.

MAJOR BOTTLENECKS

The most severe bottleneck occurs along northbound Cherokee Boulevard with approximately a 1-mile backup for an average of 1.5 hours per day.

AT A GLANCE

PEAK HOUR CONGESTION

AM
LOS (Delay) | D (36.1)
Max 95th Queue | 635'

PM
LOS (Delay) | D (39.0)
Max 95th Queue | 885'

MAJOR BOTTLENECKS

Most impactful bottleneck at northbound Cherokee Boulevard

SAFETY

2019 Crash Rate – 0.32
Worst Crash Severity – Injury
Predominant Crash Type – Angle

INTERSECTION ATTRIBUTES

Control – Two way stop control
Control Type – None
Transit Routes – No
Transit Stops – No
Sidewalk – None
Pedestrian Crossing – None
Bike Accommodation – Shared

Figure A-3. Cherokee Boulevard/Signal Mountain Road

CHEROKEE BOULEVARD/ SIGNAL MOUNTAIN ROAD

Bottleneck Influence Area - Westbound Direction
Bottleneck Influence Area - Eastbound Direction
PM Largest Deterioration Location - Southbound

Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

CHEROKEE BOULEVARD/SIGNAL MOUNTAIN ROAD (US 127/SR 8) Is a minor arterial segments extending south/east from US 27 to Market Street, approximately 4.1 miles. The speed limit varies from 30 mph on the bridge to 40 mph. The land use along the segment near downtown Chattanooga is a mix of residential and commercial use. The 2019 AADT on Signal Mountain Road south of Mundy Street (Station ID – 33000238) is 29,397 vpd.

PEAK CONGESTION

AM peak congestion occurs in the southbound direction at 8:00 AM with an average speed of 30 mph and 5th percentile speed of 23 mph. PM peak congestion occurs in the northbound direction at 5:00 PM with an average speed of 29 mph and 5th percentile speed of 21 mph.

CONGESTION TRENDS

Peak hour speeds varied (-7/+ 5 mph) along the between 2017 and 2019. The largest speed deterioration (-7 mph) occurred at the interchange of Cherokee Boulevard/ Signal Mountain Road and US 27 in the south/eastbound direction during the PM peak. Peak hour congestion varied from -30% in the PM peak in the southbound direction to 10% in the AM peak in the northbound direction.

TRAVEL TIME INDEX

Peak AM TTI (1.0) occurs at 8:00 AM in the northbound and southbound direction. Peak PM TTI (1.1) occurs at 5:00 PM in the northbound and southbound direction. The least reliable travel time (TTI – 2.1) occurs in the northbound direction of the segment between Frazier Avenue and SR 58 during the PM peak.

MAJOR BOTTLENECKS

The most severe bottleneck occurs at the Cherokee Boulevard/Signal Mountain Road and Dayton Boulevard intersection in the southbound direction which causes about a half-mile backup for an average 3 hours per day. In the northbound direction the bottleneck occurs at the US 127 and Gurley Street intersection causing a backup of approximately 1 mile for an average of 1.5 hours per day.

AT A GLANCE

PEAK HOUR CONGESTION

AM
Average Speed 30 mph
Lowest Speed 23 mph

PM
Average Speed 29 mph
Lowest Speed 21 mph

CONGESTION TRENDS

Largest deterioration at US 27 and SR 8 interchange

AVERAGE TRAVEL TIME INDEX

Least reliable travel times in the northbound direction

MAJOR BOTTLENECKS

Most impactful bottleneck at intersection of Signal Mountain Road and Dayton Boulevard

SAFETY

2019 Crash Rate – 8.45
Worst Crash Severity – Fatal
Predominant Crash Type – Rear-end

TRANSIT

Transit Routes CARTA 2
Transit Stops 2

Figure A-4. Cummings Highway/Broad Street

CUMMINGS HIGHWAY/BROAD STREET

Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

CUMMINGS HIGHWAY/BROAD STEET (US 11/US 41/SR 2) is a minor arterial segment extending approximately 5.1 miles north/west from 33rd Street to Kelly Ferry ROAd. The posted speed limit varies from 35 mph to 45 mph. The segment is located in an urban area near downtown Chattanooga with a mixed residential and commercial land uses. The 2019 AADT to the east of I-24 and US 41 interchange (Station ID – 33000352) is 12,699 vpd.

PEAK CONGESTION

AM peak congestion occurs in the northbound direction at 8:00 AM with an average speed of 40 mph. PM peak congestion occurs in the southbound direction at 5:00 PM with an average speed of 37 mph.

CONGESTION TRENDS

Peak hour speeds varied (-4/+10 mph) between 2017 and 2019. The largest speed deterioration (-4 mph) occurred at the I-24 and US 72 interchange in the eastbound direction during the AM peak. AM peak hour congestion decreased in both eastbound and westbound directions from the west end of the segment to Kelly Ferry Road but increased from Kelly Ferry Road to the east end.

TRAVEL TIME INDEX

Peak AM TTI (1.0) occurs at 8:00 AM in the northbound and south/eastbound direction. Peak PM TTI (1.1) occurs at 5:00 PM at the north/westbound and south/eastbound direction. The least reliable travel time (TTI – 1.4) occurs in the south/eastbound direction of the segment between Scenic Highway and Tennessee Avenue during the PM peak.

MAJOR BOTTLENECKS

The most severe bottleneck occurs at the US 11 and Wauhatchie Pike/ Browns Ferry Road intersection in the southbound direction which causes a backup of approximately 2 miles for an average of 0.5 hour per day. In the northbound direction the bottleneck occurs at the US 11 and SR 17 intersection causing a backup of approximately 1 mile for an average of 0.5 hour per day.

AT A GLANCE

PEAK HOUR CONGESTION

AM
Average Speed 40 mph
Lowest Speed 34 mph

PM
Average Speed 37 mph
Lowest Speed 26 mph

CONGESTION TRENDS

Largest deterioration at I-24 and US 72 interchange

AVERAGE TRAVEL TIME INDEX

Least reliable travel times in the southbound/eastbound direction

MAJOR BOTTLENECKS

Most impactful bottleneck at Wauhatchie Pike/Browns Ferry Road

SAFETY

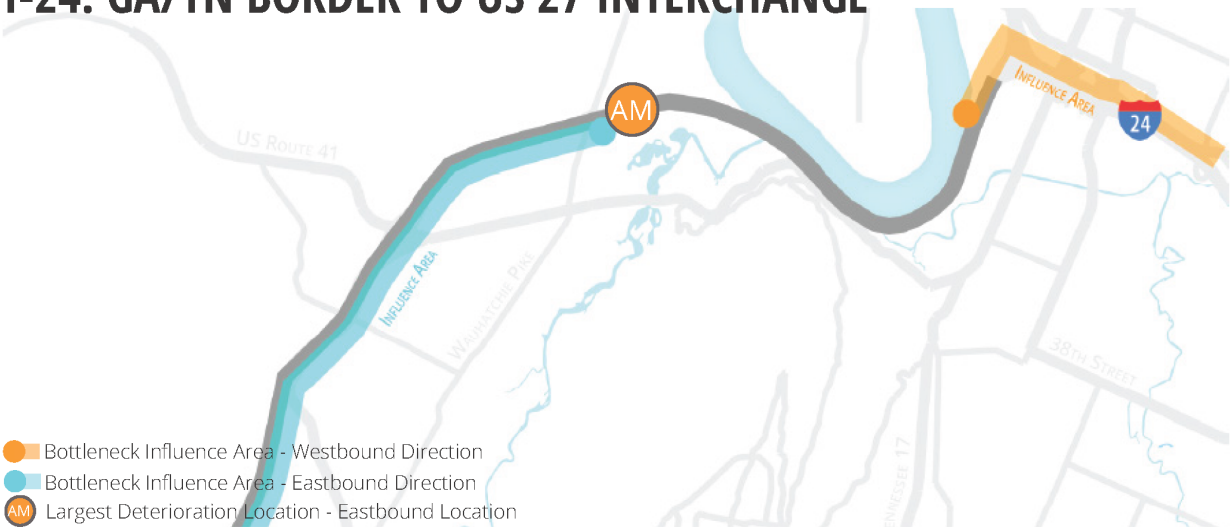
2019 Crash Rate – 9.91
Worst Crash Severity – Fatal
Predominant Crash Type – Rear-end

TRANSIT

Transit Routes 1 & 15
Transit Stops 10

Figure A-5. I-24: GA/TN Border to US 27 Interchange

I-24: GA/TN BORDER TO US 27 INTERCHANGE



Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

I-24 is an interstate segment extending approximately 7.6 miles from from Tennessee-Georgia border to US 27 Interchange. The posted speed limit is 65 mph with a 2019 AADT of 75,006 vpd west of US 27 (Station ID 33000182). An additional lane in each direction is planned.

PEAK CONGESTION

AM peak congestion occurs in the eastbound direction at 8:00 AM. The average speed is 59 mph and the 5th percentile speed is 53 mph. PM peak is 4:00 PM. The average speed is 50 mph and the 5th percentile speed is 33 mph. No severe congestion was observed on this segment.

CONGESTION TRENDS

Difference in peak hour speeds varied (-5/+11mph) along the corridor between 2017 and 2019.

TRAVEL TIME INDEX

The AM peak TTI (1.1) occurs at 8:00 AM in the eastbound direction. PM peak TTI (1.2) occurs at 4:00 PM in the westbound direction.

MAJOR BOTTLENECKS

Bottleneck 1 extends into the most eastern point of the segments, but no other bottlenecks in the top five occur in this segment.

AT A GLANCE

PEAK HOUR CONGESTION

AM — Average Speed 59 mph; Lowest Speed 53 mph

PM — Average Speed 50 mph; Lowest Speed 33 mph

CONGESTION TRENDS

Largest deterioration occurs in the eastbound segment

AVERAGE TRAVEL TIME INDEX

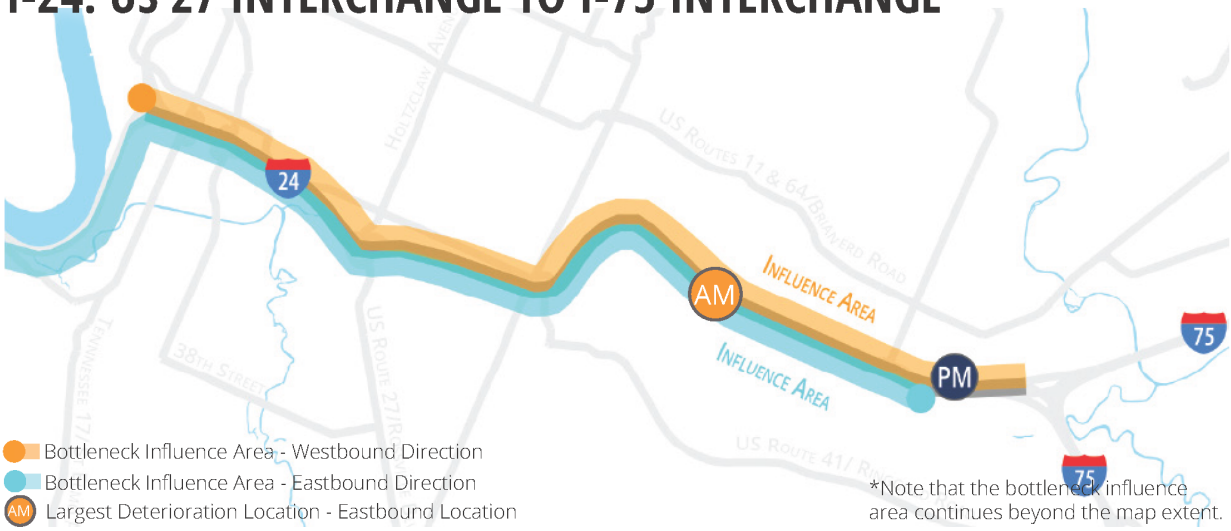
Least reliable travel times are for the westbound direction

MAJOR BOTTLENECKS

I-24 westbound at the most eastern point of the segment

Figure A-6. I-24: US 27 Interchange to I-75 Interchange

I-24: US 27 INTERCHANGE TO I-75 INTERCHANGE



Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

I-24 is an interstate segment extending approximately 6.9 miles from US 27 interchange to I-75 interchange. The posted speed limit along I-24 is 65 mph from I-24/US 27/SR 29 and Rossville Boulevard/Central Avenue (Exit 180A), 55 mph from Rossville Boulevard/Central Avenue (Exit 180A) to east of 4th Avenue, 45 mph between 4th Avenue and S. Germantown Road) and changes back to 55 mph east of S. Germantown Road. The land use along this segment is mainly residential with some commercial use near the system interchanges. The 2019 AADT is 125,129 vpd west of I-75 (Station ID 33000212).

PEAK CONGESTION

AM peak congestion occurs in the eastbound direction at 8:00 AM. The average speed is 56 mph and the 5th percentile speed is 48 mph. Severe PM peak congestion occurs in the eastbound direction at 5:00PM with an average speed of 21 mph and 5th percentile speed of 13 mph.

TRAVEL TIME INDEX

AM peak TTI (1) occurs at 8:00 AM in the eastbound direction. PM peak TTI (2.7) occurs at 5:00 PM in the eastbound direction.

CONGESTION TRENDS

Difference in peak hour speeds varied (-5/+6 mph) along the corridor between 2017 and 2019.

MAJOR BOTTLENECKS

Bottleneck 1, Bottleneck 3 and Bottleneck 5 occur in this segment. Bottlenecks 1 and 5 overlap in the westbound direction and Bottleneck 3 occurs in the eastbound direction of I-24.

AT A GLANCE

PEAK HOUR CONGESTION

AM	Average Speed	56 mph
	Lowest Speed	48 mph
PM	Average Speed	21 mph
	Lowest Speed	13 mph

CONGESTION TRENDS

Largest deterioration occurs in the eastbound direction

AVERAGE TRAVEL TIME INDEX

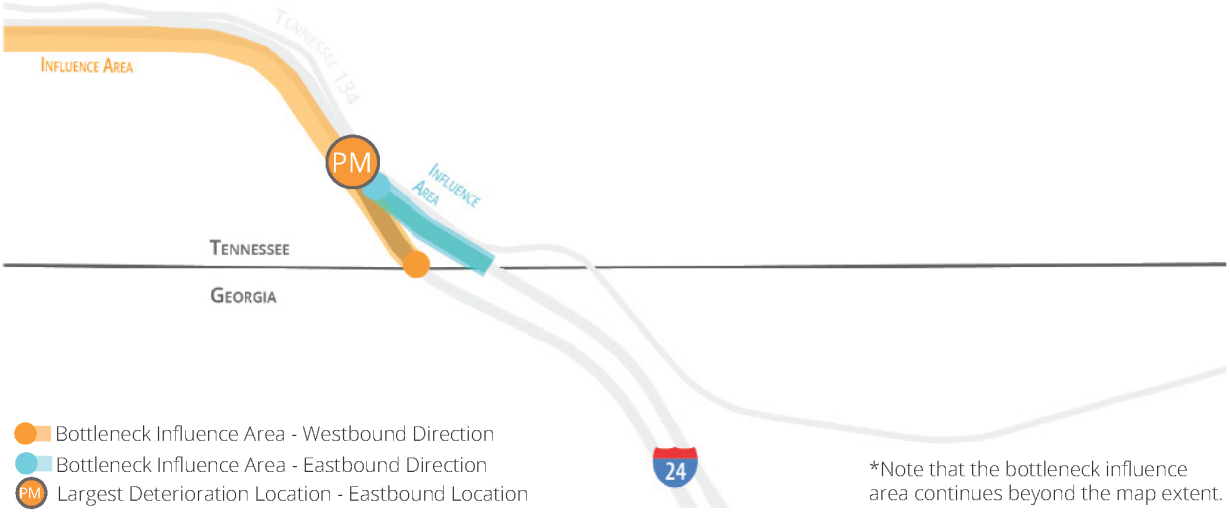
Least reliable travel times are for the eastbound direction

MAJOR BOTTLENECKS

I-24 westbound at I-24 and US 27 interchange

Figure A-7. I-24: West TPO Border to GA/TN Border

I-24: WEST TPO BORDER TO GA/TN BORDER



Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

I-24 is an interstate extending approximately 0.36 miles from West TPO border to Tennessee-Georgia border for approximately 0.4 mile. The posted speed limit is 70 mph with a 2019 AADT of 52,421 vpd just west of the segment extent (Station ID 58000063).

PEAK CONGESTION

AM peak congestion occurs in the eastbound direction at 8:00 AM. The average speed is 60 mph and the 5th percentile speed is 48 mph. PM peak congestion occurs at 4:00 PM. The average speed is 56 mph and the 5th percentile speed is 36 mph. No severe congestion was observed on this segment.

CONGESTION TRENDS

Differences in peak hour are minor. Speeds varied (-4/+2 mph) between 2017 and 2019.

TRAVEL TIME INDEX

AM peak TTI (1.1) occurs at 9:00 AM in the eastbound direction. PM peak TTI (1.1) occurs at 4:00 PM in the eastbound direction. There is an additional midday peak with a TTI of 1.3 between 12 and 3 PM in the eastbound direction.

MAJOR BOTTLENECKS

Bottleneck 4 of the top 5 identified occurs on this segment in eastbound direction of I-24 at the Tennessee-Georgia border. Except for a period in February through April, when congestion occurred at all hours of the day, congestion was light and scattered with no significant peaking characteristics.

AT A GLANCE

PEAK HOUR CONGESTION

AM — Average Speed 60 mph; Lowest Speed 48 mph

PM — Average Speed 56 mph; Lowest Speed 36 mph

CONGESTION TRENDS

Largest deterioration occurs at the western end of the segment's eastbound direction

AVERAGE TRAVEL TIME INDEX

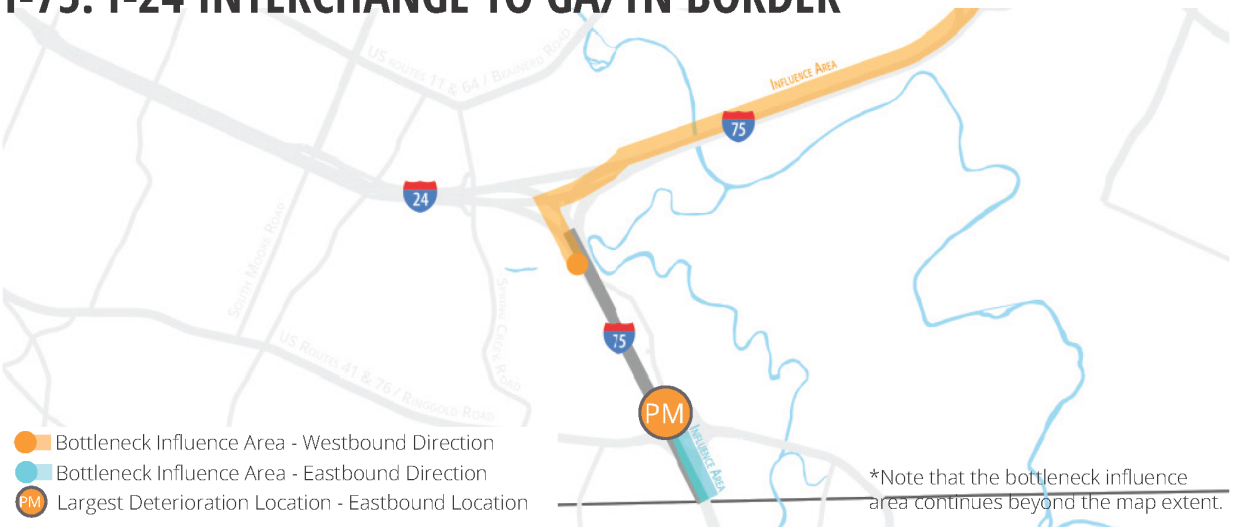
Least reliable travel times are on the segment's eastbound direction

MAJOR BOTTLENECKS

I-24 eastbound at Tennessee – Georgia State Line

Figure A-8. I-75: I-24 Interchange to GA/TN Border

I-75: I-24 INTERCHANGE TO GA/TN BORDER



Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

I-75 is an interstate segment extending approximately 1.4 miles from I-24 interchange to Tennessee-Georgia border. The posted speed limit along the segment is 55 mph. The land use along this segment is a mix of residential commercial. 2019 AADT is 113,371 vpd west of I-75 (Station ID 33000160).

PEAK CONGESTION

AM peak congestion occurs in the northbound direction at 8:00 AM with an average speed of 39 mph and 5th percentile speed of 23 mph. PM peak congestion occurs in the eastbound direction at 3:00 PM with an average speed of 33 mph and 5th percentile speed of 18 mph.

CONGESTION TRENDS

Difference in peak hour speeds varied (-17/+1 mph) along the corridor between 2017 and 2019.

TRAVEL TIME INDEX

AM peak TTI is 1.5 and PM peak TTI is 1.8. Both are northbound.

MAJOR BOTTLENECKS

While RITIS did not identify a specific bottleneck in the top 5, congestion is present and significant. The current and future improvements will be key to reducing congestion on this interchange which plays a major role in the Chattanooga interstate system and is very important to efficient movement of freight.

AT A GLANCE

PEAK HOUR CONGESTION

AM — Average Speed 39 mph; Lowest Speed 23 mph

PM — Average Speed 33 mph; Lowest Speed 18 mph

CONGESTION TRENDS

Largest deterioration occurs in the northbound direction

AVERAGE TRAVEL TIME INDEX

Least reliable travel times are for the northbound direction

MAJOR BOTTLENECKS

I-24 northbound at I-24 and I-75 interchange

Figure A-9. I-75: I-24 Interchange to SR 153 Interchange

I-75: I-24 INTERCHANGE TO SR 153 INTERCHANGE

Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

I-75 is an interstate segment extending approximately 2.9 miles from I-24 interchange to SR 153 interchange. The posted speed limit along the segment is 55 mph. The land use along this segment is mainly residential and 2019 AADT is 129,823 vpd east of I-24 (Station ID 33000163).

PEAK CONGESTION

Severe AM peak congestion occurs in the southbound direction at 8:00 AM with an average speed of 44 mph and 5th percentile speed of 28 mph. Severe PM peak congestion occurs in the southbound direction at 5:00 PM with an average speed of 41 mph and 5th percentile speed of 21 mph.

TRAVEL TIME INDEX

AM peak TTI (1.4) occurs at 8:00 AM in the southbound direction. PM peak TTI (1.5) occurs at 5:00 PM in the southbound direction.

CONGESTION TRENDS

Difference in peak hour speeds varied (-5/+10 mph) along the corridor between 2017 and 2019.

MAJOR BOTTLENECKS

Bottleneck 2 occurs in southbound direction of I-75 at I-24 (Exit 2) which causes an approximately two mile backup for an average 2 hours per day. In the northbound direction of I-75 the bottleneck occurs at I-75 and Brainerd Road (Exit 3) and is related to its proximity to SR 153.

AT A GLANCE

PEAK HOUR CONGESTION

AM	Average Speed	44 mph
	Lowest Speed	28 mph
PM	Average Speed	41 mph
	Lowest Speed	21 mph

CONGESTION TRENDS

Largest deterioration occurs in the southbound direction

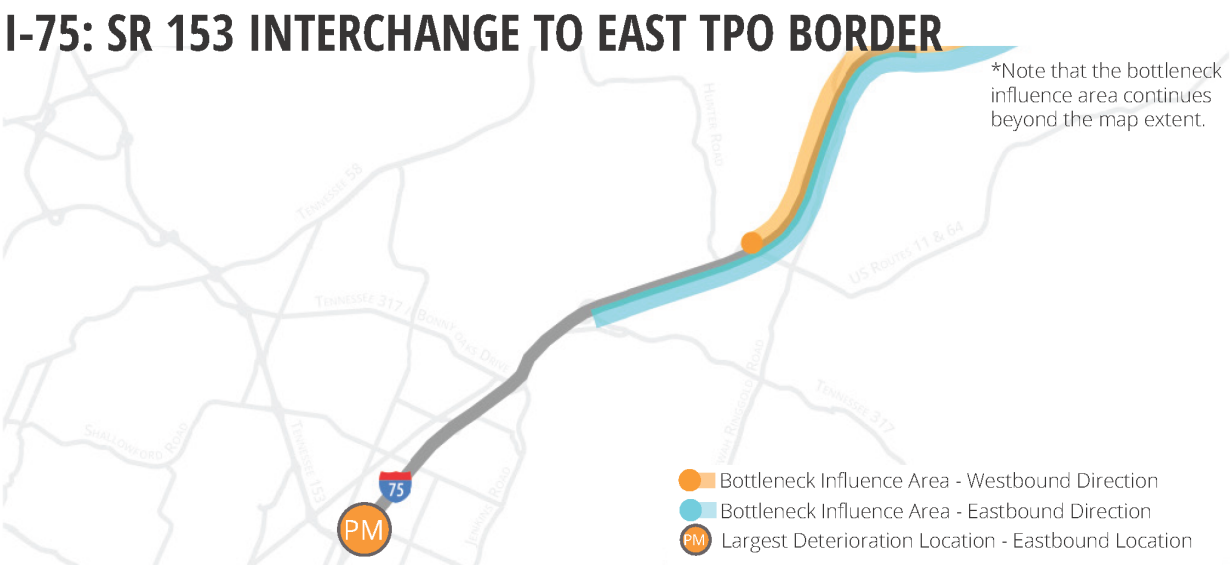
AVERAGE TRAVEL TIME INDEX

Least reliable travel times are for the southbound direction

MAJOR BOTTLENECKS

I-75 northbound at I-75 and Brainerd Road interchange

Figure A-10. I-75: SR 153 Interchange to East TPO Border



Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

I-75 is an interstate segment extending approximately 11.4 miles from SR 153 interchange to East TPO border. The posted speed limit along the segment is 65 mph. The land use along this segment is mainly residential and 2019 AADT is 99,129 vpd north of SR 153 (Station ID 33000163).

PEAK CONGESTION

AM peak congestion occurs at 8:00 AM in the eastbound direction. The average speed is 65 mph and the 5th percentile speed is 58 mph. PM peak is 5:00 PM. The average speed is 61 mph and the 5th percentile speed is 47 mph. No severe congestion was observed in the segment.

CONGESTION TRENDS

Difference in peak hour speeds varied (-2/+7 mph) along the corridor between 2017 and 2019.

TRAVEL TIME INDEX

Travel time indices identified in RITIS remained at 1.0 indicating no significant congestion.

MAJOR BOTTLENECKS

None of the top 5 bottlenecks identified for Chattanooga occur in this segment. It should, however, be noted that in the east end of the segment, significant grades exist, which, as traffic builds over time, could exacerbate congestion.

AT A GLANCE

PEAK HOUR CONGESTION

AM — Average Speed 65 mph; Lowest Speed 58 mph

PM — Average Speed 61 mph; Lowest Speed 47 mph

CONGESTION TRENDS

Least reliable travel times are for the southbound direction

AVERAGE TRAVEL TIME INDEX

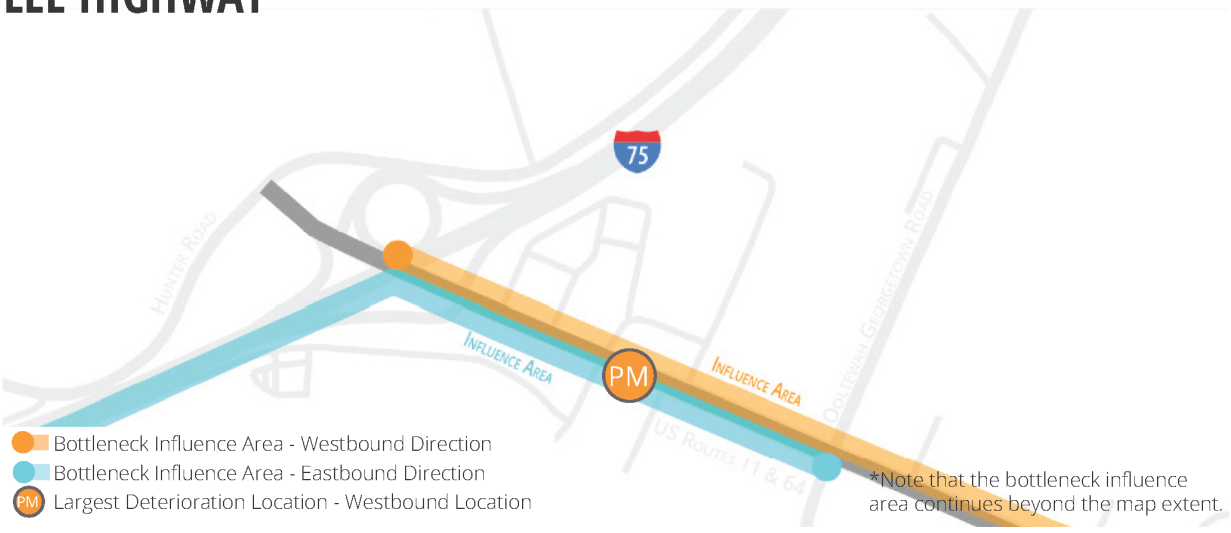
Least reliable travel times are for the northbound direction

MAJOR BOTTLENECKS

None of the top five bottlenecks occur in this segment. RITIS identified little congestion overall.

Figure A-11. Lee Highway

LEE HIGHWAY



Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

LEE HIGHWAY (US 11/US 64/SR 2) is a minor arterial segment extending east from Hunter Road to Chesterton Way, approximately 1 mile. The posted speed limit is 45 mph in the study area. The land use along the corridor is a mix of residential and commercial. The 2019 AADT to the east of I-75 northbound ramp terminals (Station ID – 33000597) is 36,638 vpd.

PEAK CONGESTION

AM peak congestion occurs in the eastbound direction at 8:00 AM with an average speed of 30 mph and 5th percentile speed of 23 mph. PM peak corridor congestion also occurs in the eastbound direction at 5:00 PM with an average speed of 26 mph and 5th percentile speed of 19 mph.

CONGESTION TRENDS

Peak hour speeds varied slightly (-2/+2 mph) between 2017 and 2019. The largest speed deterioration (-2 mph) occurs in the westbound direction between the I-75 northbound ramp terminal and the end of the segment during the PM peak. Peak hour congestion increased along most of the segment between 2017 and 2019 during both peaks.

TRAVEL TIME INDEX

AM peak TTI (1.1) occurs at 8:00 AM in the eastbound direction. PM peak TTI (1.3) occurs at 5:00 PM in the eastbound direction. The least reliable travel time (TTI – 1.9) occurs in the eastbound direction of the US 64 segment between I-75 northbound ramp and Ooltewah Georgetown Road during the PM peak.

MAJOR BOTTLENECKS

The largest deterioration occurs in the westbound direction at US 11 and I-75 northbound ramp terminal which causes about a ½ mile backup for an average of 3.5 hours per day. The second major bottleneck occurs in the northbound direction at the US 11 and Ooltewah Georgetown Road intersection, causing approximately 1 mile backup for an average of 3 hours per day.

AT A GLANCE

PEAK HOUR CONGESTION

AM
Average Speed 30 mph
Lowest Speed 23 mph

PM
Average Speed 26 mph
Lowest Speed 19 mph

CONGESTION TRENDS

Largest deterioration occurs in the westbound direction

AVERAGE TRAVEL TIME INDEX

Least reliable travel times between I-75 northbound ramp terminal and Ooltewah Georgetown Road

MAJOR BOTTLENECKS

I-75 Interchange

SAFETY

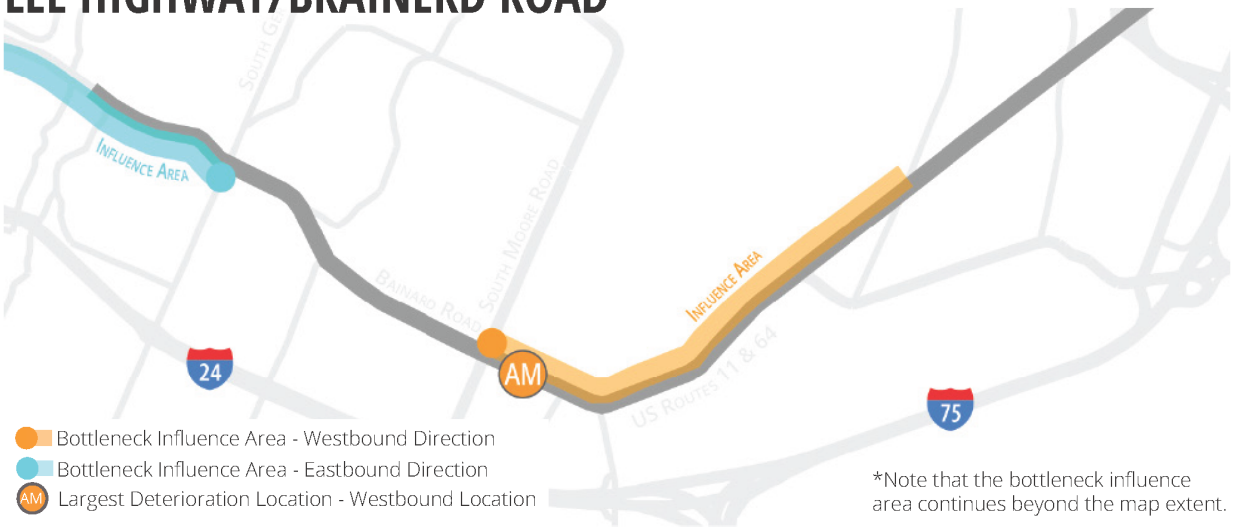
2019 Crash Rate –17.45
Worst Crash Severity – Injury
Predominant Crash Type – Rear-end

TRANSIT

None

Figure A-12. Lee Highway/Brainerd Road

LEE HIGHWAY/BRAINERD ROAD



Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

LEE HIGHWAY/BRAINERD ROAD (US 11/US 64/SR 2) is a principal arterial segment extending west from Customer Delight Drive to Seminole Drive, approximately 5.3 miles. The posted speed limit of 45 mph in the study area. The land use in the area is a mix of residential and commercial. The 2019 AADT to the east of Spring Creek Road (Station ID – 33000102) is 31,590 vpd.

PEAK CONGESTION

AM peak congestion occurs in the westbound direction at 8:00 AM with an average speed of 28 mph and 5th percentile speed of 19 mph. PM peak congestion occurs in the eastbound direction at 5:00 PM with an average speed of 23 mph and 5th percentile speed of 15 mph.

CONGESTION TRENDS

Peak hour speeds varies (-5/+4 mph) between 2017 and 2019. The largest speed deterioration (-5 mph) occurred in the westbound direction between Moore Road and McBrien Road during the AM peak. Peak hour congestion decreased along most of the segment in the westbound direction between 2017 and 2019 during both peaks.

TRAVEL TIME INDEX

AM peak TTI (1.1) occurs at 8:00 AM in the westbound direction. PM peak TTI (1.3) occurs at 5:00 PM both in the eastbound and westbound direction. The least reliable travel time (TTI – 2.3) occurs in the eastbound direction between the Germantown Road and west end of the segment during the PM peak.

MAJOR BOTTLENECKS

The major bottleneck occurs at the Germantown Road intersection in the eastbound direction which causes approximately a mile backup for an average of 1.5 hours per day. In the westbound direction the bottleneck occurs at the Moore Road/Club Drive intersection, causing approximately a ½ mile backup for an average of 1.5 hours per day.

AT A GLANCE

PEAK HOUR CONGESTION

AM — Average Speed 28 mph; Lowest Speed 19 mph

PM — Average Speed 23 mph; Lowest Speed 15 mph

CONGESTION TRENDS

Largest deterioration in the westbound direction

AVERAGE TRAVEL TIME INDEX

Least reliable travel times between west end of segment and Germantown Road

MAJOR BOTTLENECKS

Westbound direction at Spring Creek Road

SAFETY

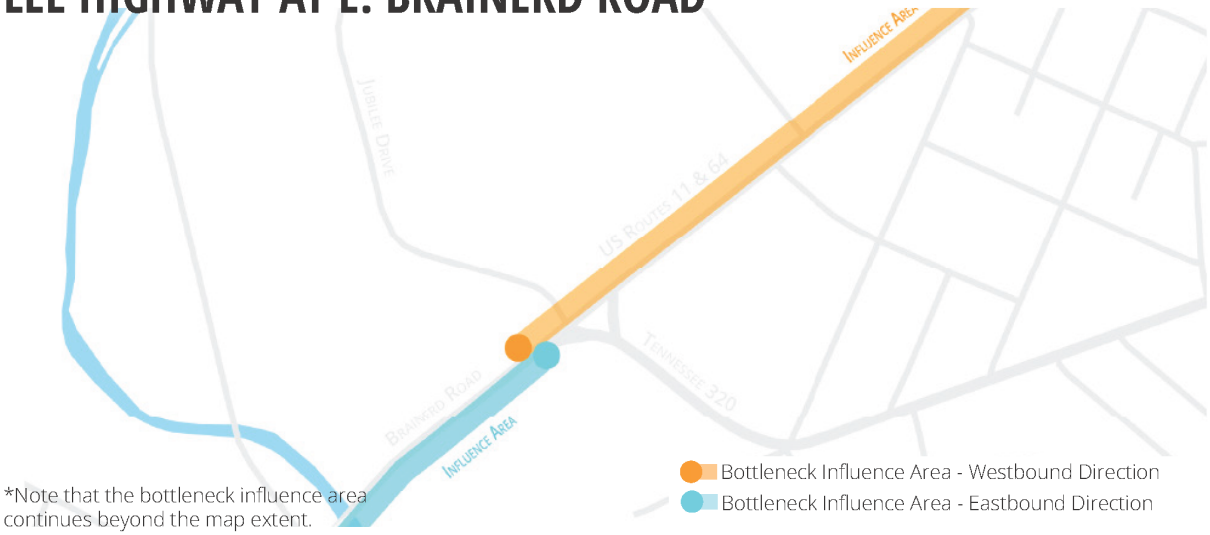
2019 Crash Rate – 3.39
Worst Crash Severity – Fatal
Predominant Crash Type – Rear-end

TRANSIT

Transit Routes: CARTA 4
Transit Stops: 50

Figure A-13. Lee Highway and E. Brainerd Road

LEE HIGHWAY AT E. BRAINERD ROAD



Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

LEE HIGHWAY AT E. BRAINERD ROAD is a four-legged signalized intersection of Lee Highway (US 11/US 64/SR 2), a major arterial and E. Brainerd Road (SR 320), a collector street. The fourth leg of the intersection, Jubilee Drive, is a local street. The 2019 AADT along Lee Highway is 31,590 vpd south of the intersection (Station ID 33000102) and 15,717 vpd to the east of E. Brainerd Road (Station ID 33000100).

PEAK HOUR OPERATIONS

The intersection operates at LOS D with 36.7 seconds delay in the AM peak and LOS D with 42.7 seconds delay in the PM. The signal is coordinated with a 110-second cycle length and an offset of 22 seconds in the AM peak and 81 seconds in PM peak.

PEAK HOUR CONGESTION

The southbound through movement at this intersection has a maximum 95th percentile queue of 527 feet with a v/c of 0.93 in the AM peak. In the PM peak, the southbound through movement has a maximum 95th percentile queue of 767 feet queue with a v/c of 1.07.

MAJOR BOTTLENECKS

The most severe bottleneck occurs along Lee Highway with approximately a 0.5-mile backup for an average of 5 hours per day in the southbound direction.

AT A GLANCE

PEAK HOUR CONGESTION

AM	LOS (Delay)	D (36.7)
	Max 95th Queue	527'
PM	LOS (Delay)	D (42.7)
	Max 95th Queue	767'

MAJOR BOTTLENECKS

Most impactful bottleneck at southbound Lee Highway

INTERSECTION ATTRIBUTES

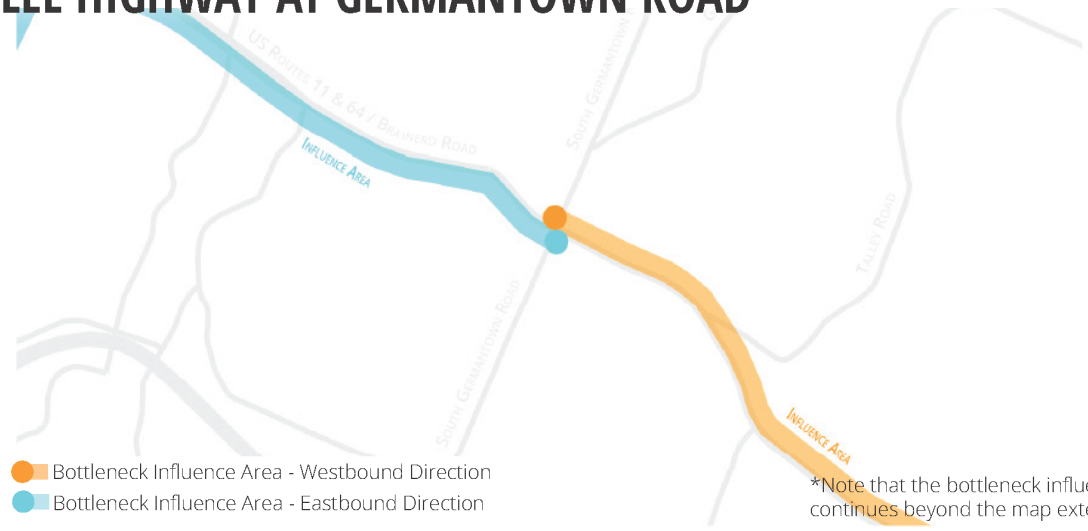
Control – Signal
Control Type – Actuated
Transit Routes – Yes
Transit Stops – Yes
Sidewalk – Partial
Pedestrian Crossing – Partial
Bike Accommodation – Shared

SAFETY

2019 Crash Rate – 1.35
Worst Crash Severity – Injury
Predominant Crash Type – Angle

Figure A-14. Lee Highway and Germantown Road

LEE HIGHWAY AT GERMANTOWN ROAD



Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

LEE HIGHWAY AT GERMANTOWN ROAD is a four-legged signalized intersection of Lee Highway (US 11/US 64/SR 2), a major arterial and Germantown Road, a local street. The 2019 AADT along US 11 is 36,239 vpd west of the intersection (Station ID 33000103) and 6,570 vpd along Germantown Road to the north (Station ID 33000363).

PEAK HOUR OPERATIONS

The intersection operates at LOS D in both peaks with 36.1 seconds delay in the AM peak and 39.0 seconds delay in the PM peak. The signal is coordinated with a 140-second cycle length during both peaks with an offset of 56 seconds in the AM peak and 48 seconds in PM peak.

PEAK HOUR CONGESTION

The westbound through movement at this intersection has a maximum 95th percentile queue of 635 feet with a v/c of 0.78 in the AM peak. In the PM peak, the westbound through movement has a maximum 95th percentile queue of 685 feet queue with a v/c of 0.89.

MAJOR BOTTLENECKS

The most severe bottleneck occurs along northbound Lee Highway with approximately a 1-mile backup for an average of 1.5 hours per day.

AT A GLANCE

PEAK HOUR CONGESTION

AM — LOS (Delay) D (36.1); Max 95th Queue 635'

PM — LOS (Delay) D (39.0); Max 95th Queue 885'

MAJOR BOTTLENECKS

Most impactful bottleneck at northbound Lee Highway

INTERSECTION ATTRIBUTES

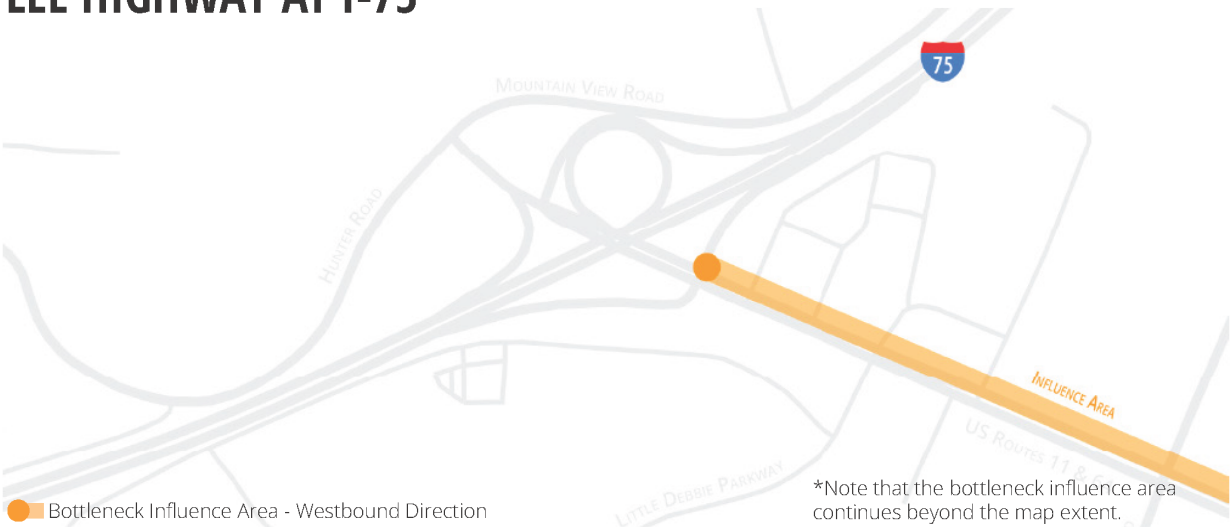
Control – Signal
Control Type – Actuated
Transit Routes – Yes
Transit Stops – Yes
Sidewalk – All
Pedestrian Crossing – All
Bike Accommodation – Shared

SAFETY

2019 Crash Rate – 2.97
Worst Crash Severity – Injury
Predominant Crash Type – Rear-end

Figure A-15. Lee Highway and I-75

LEE HIGHWAY AT I-75



Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

LEE HIGHWAY at I-75 is a diamond interchange with a loop in the northern quadrant. Both the ramp terminals are signalized four-legged intersections. The southbound ramp terminal includes the loop ramp for the westbound Lee Highway (US 11/US 64/SR 2) to southbound I-75 movement and free flowing right-turn lane for the eastbound Lee Highway to southbound I-75 movement. The 2019 AADT along Lee Highway is 36,638 vpd east of the I-75 interchange (Station ID 33000597).

PEAK HOUR OPERATIONS

The I-75 southbound ramp terminal operates at LOS A in both peaks with 7.8 and 9.5 seconds delay in the AM peak and 9.5 seconds delay in the PM peak. The I-75 northbound ramp terminal operates at LOS B with 17.9 seconds delay in the AM peak and LOS D with 40.4 seconds delay in the PM peak. Currently, the signal operates at a coordinated cycle length of 80 seconds.

MAJOR BOTTLENECKS

The most severe bottleneck occurs at the I-75 northbound ramp terminal which causes approximately a 0.5-mile backup for an average of 3.5 hours per day in the westbound direction, along Lee Highway.

PEAK HOUR CONGESTION

The eastbound through movement at the I-75 southbound ramp terminal has a maximum 95th percentile queue of 240 feet with a volume to capacity ratio (v/c) of 0.68 in the AM peak and 270 feet queue with a v/c of 0.63 in the PM peak. At the I-75 northbound ramp terminal, the northbound left-turn movement has a maximum 95th percentile queue of 269 feet with a v/c ratio of 0.62 in the AM peak and 527 feet queue with a v/c of 1.09 in the PM peak.

AT A GLANCE

PEAK HOUR CONGESTION

AM	LOS (Delay)	B (17.9)
	Max 95th Queue	296'
PM	LOS (Delay)	D (40.4)
	Max 95th Queue	527'

MAJOR BOTTLENECKS

Most impactful bottleneck at northbound Lee Highway at I-75 northbound ramps

INTERSECTION ATTRIBUTES

Control – Signal
Control Type – Actuated
Transit Routes – No
Transit Stops – No
Sidewalk – None
Pedestrian Crossing – None
Bike Accommodation – Shared

SAFETY

2019 Crash Rate – 1.44
Worst Crash Severity – Injury
Predominant Crash Type – Rear-end

Figure A-16. Lee Highway and Ooltewah Georgetown Road

Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

LEE HIGHWAY AT OOLTEWAH GEORGETOWN ROAD is a four-legged signalized intersection of Lee Highway (US 11/US 64/SR 2) and Ooltewah Georgetown Road, both minor arterials. The 2019 AADT along Lee Highway is 36,638 vpd, west of the intersection (Station ID 33000597).

PEAK HOUR OPERATIONS

The intersection operates at LOS C with 25.9 seconds delay in the AM peak and LOS D with 40.8 seconds delay in the PM. The signal is coordinated with a 80-second cycle length and an offset of 22 seconds in both peaks.

PEAK HOUR CONGESTION

The southbound through movement at this intersection has a maximum 95th percentile queue of 255 feet with a v/c of 0.83 in the AM peak. In the PM peak, the northbound through movement has a maximum 95th percentile queue of 270 feet queue with a v/c of 0.63.

MAJOR BOTTLENECKS

The most severe bottleneck at this intersection occurs along eastbound Lee Highway with approximately 1 mile backup for an average of 3 hours per day.

AT A GLANCE

PEAK HOUR CONGESTION

AM	LOS (Delay)	C (25.9)
	Max 95th Queue	255'
PM	LOS (Delay)	D (40.4)
	Max 95th Queue	405'

MAJOR BOTTLENECKS

Most impactful bottleneck at southbound Lee Highway

INTERSECTION ATTRIBUTES

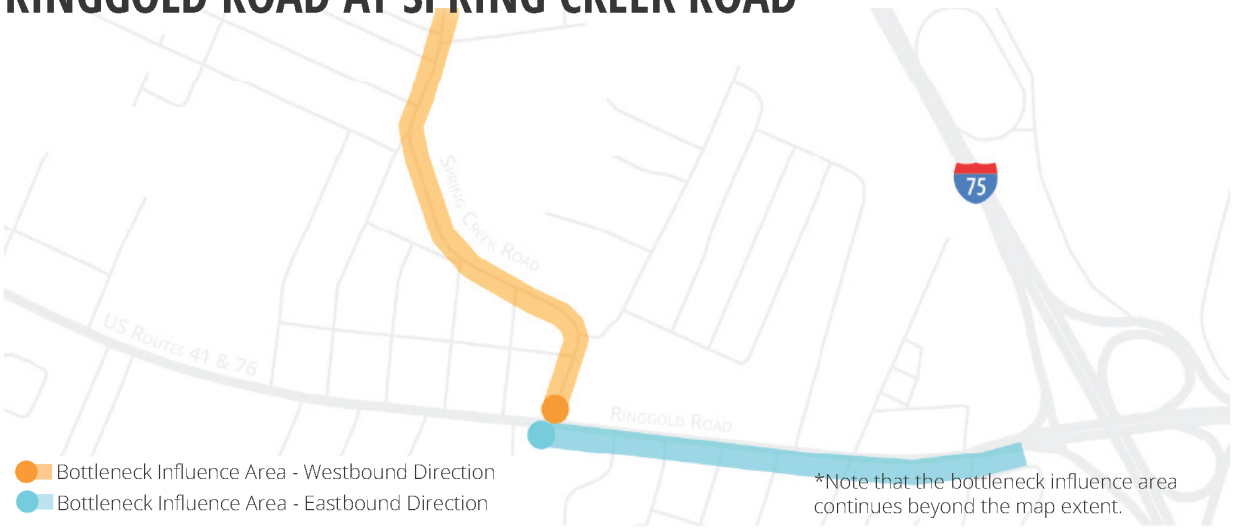
Control – Signal
Control Type – Actuated
Transit Routes – No
Transit Stops – No
Sidewalk – Partial
Pedestrian Crossing – None
Bike Accommodation – Shared

SAFETY

2019 Crash Rate – 2.28
Worst Crash Severity – Injury
Predominant Crash Type – Angle

Figure A-17. Ringgold Road and Spring Creek Road

RINGGOLD ROAD AT SPRING CREEK ROAD



Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

RINGGOLD ROAD AT SPRING CREEK ROAD is a three-legged signalized intersection of Ringgold Rd (US 41/US 76/SR 2), a major arterial, and Spring Creek Road, a collector street. The 2019 AADT along Ringgold Road is 26,898 vpd east of the intersection (Station ID 33000486) and 13,749 vpd along Spring Creek Road to the north (Station ID 33000281).

PEAK HOUR OPERATIONS

The intersection operates at LOS B with 14.0 seconds delay in the AM peak and LOS C with 28.0 seconds delay in the PM. The signal is coordinated with a 130-second cycle length and an offset of 52 seconds in the AM peak and 140-second cycle length and an offset of 68 seconds in PM peak.

PEAK HOUR CONGESTION

The westbound through movement at this intersection has a maximum 95th percentile queue of 243 feet with a v/c of 0.37 in the AM peak. In the PM peak, the westbound through movement has a maximum 95th percentile queue of 610 feet queue with a v/c of 0.65.

MAJOR BOTTLENECKS

The most severe bottleneck occurs along Spring Creek Road with approximately a 0.2-mile backup for an average of 9 hours per day in the southbound direction.

AT A GLANCE

PEAK HOUR CONGESTION

AM	LOS (Delay)	B (14.0)
	Max 95th Queue	243'
PM	LOS (Delay)	D (28.0)
	Max 95th Queue	610'

MAJOR BOTTLENECKS

Most impactful bottleneck at sorthbound Spring Creek Road

INTERSECTION ATTRIBUTES

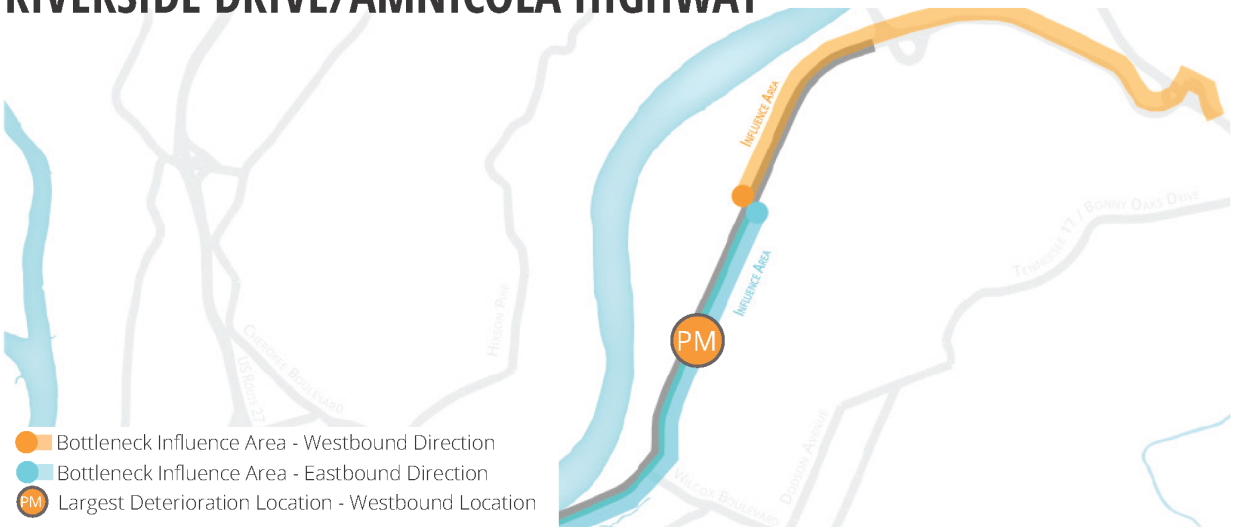
Control – Signal
Control Type – Actuated
Transit Routes – No
Transit Stops – No
Sidewalk – All
Pedestrian Crossing – Partial
Bike Accommodation – Dedicated Lane

SAFETY

2019 Crash Rate – 0.7
Worst Crash Severity – Injury
Predominant Crash Type – Rear-end

Figure A-18. Riverside Drive/Amnicola Highway

RIVERSIDE DRIVE/AMNICOLA HIGHWAY



Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

RIVERSIDE DR/AMNICOLA HIGHWAY is a principal arterial segment extending east/north from SR 319 to Mabel Street underpass, approximately 4.3 miles. The posted speed limit is 50 mph and the land use along the segment is a mix of residential and commercial uses. The 2019 AADT to the east of Amnicola Highway and Dupont Parkway interchange (Station ID – 33000503) is 36,236 vpd.

PEAK CONGESTION

AM peak congestion occurs in the westbound direction at 8:00 AM with an average speed of 39 mph and 5th percentile speed of 27 mph. PM peak congestion occurs in the eastbound direction at 5:00 PM with an average speed of 31 mph and 5th percentile speed of 20 mph.

CONGESTION TRENDS

Peak hour speeds varies (-3/+ 6 mph) between 2017 and 2019. The largest speed deterioration (-3 mph) occurred in the westbound direction between Wilcox Boulevard and Wisdom Street during the PM peak. Peak hour congestion increased along most of the segment between 2017 and 2019 during both peaks.

TRAVEL TIME INDEX

AM peak TTI (1.1) occurs at 8:00 AM in the south/westbound direction. PM peak TTI (1.4) occurs at 5:00 PM at the east/northbound direction. The least reliable travel time (TTI – 1.8) occurs in the east/ northbound direction of the segment between the E. 4th Street on-ramp and Wilcox Boulevard in the PM peak.

MAJOR BOTTLENECKS

The most severe bottleneck occurs at the Wisdom Street intersection in the east/northbound direction which causes approximately a 2.5-mile backup for an average of 0.5 hour per day. In the west/southbound direction the bottleneck occurs at Wisdom Street intersection causing approximately a 1.5-mile backup for an average of 0.5 hour per day.

AT A GLANCE

PEAK HOUR CONGESTION

AM	Average Speed	39 mph
	Lowest Speed	27 mph
PM	Average Speed	31 mph
	Lowest Speed	20 mph

CONGESTION TRENDS

Largest deterioration between Wilcox Boulevard and Wisdom Street

AVERAGE TRAVEL TIME INDEX

Least reliable travel times in the eastbound direction

MAJOR BOTTLENECKS

Most impactful bottleneck at Wisdom Street

SAFETY

2019 Crash Rate – 3.39
Worst Crash Severity – Fatal
Predominant Crash Type – Rear-end

TRANSIT

	Transit Routes	CARTA 28
	Transit Stops	15

Figure A-19. Shallowford Road and I-75

Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

SHALLOWFORD ROAD AT I-75 is a diamond interchange with signals at the ramp terminals. The 2019 AADT along Shallowford Road is 24,611 vpd west of the interchange (Station ID 33000470) and 16,610 vpd to the east (Station ID 33000264).

PEAK HOUR OPERATIONS

The I-75 southbound ramp terminal operates at LOS C with a delay of 26.6 seconds in the AM peak and LOS D with 36.0 seconds delay in the PM peak. The I-75 northbound ramp terminal operates at LOS C with 27.4 seconds delay in the AM peak and LOS D with 36.8 seconds delay in the PM peak. Currently, the signal operates at a coordinated cycle length of 100 seconds in the AM peak and 120 seconds in the PM.

MAJOR BOTTLENECKS

The most severe bottleneck occurs at the I-75 northbound ramp terminal which causes approximately a 0.5-mile backup for an average of 7 hours per day in the westbound direction, along Shallowford Road.

PEAK HOUR CONGESTION

The eastbound through movement at the I-75 southbound ramp terminal has a maximum 95th percentile queue of 313 feet with a v/c of 0.63 in the AM peak and 745 feet queue with a v/c of 0.91 in the PM peak. At the I-75 northbound ramp terminal, the eastbound through movement has a maximum 95th percentile queue of 384 feet with a v/c ratio of 0.80 in the AM peak and 483 feet queue with a v/c of 0.85 in the PM peak.

AT A GLANCE

PEAK HOUR CONGESTION

AM	LOS (Delay)	C (27.4)
	Max 95th Queue	384'
PM	LOS (Delay)	D (36.8)
	Max 95th Queue	483'

MAJOR BOTTLENECKS

Most impactful bottleneck at westbound Shallowford Road at I-75 northbound ramps

INTERSECTION ATTRIBUTES

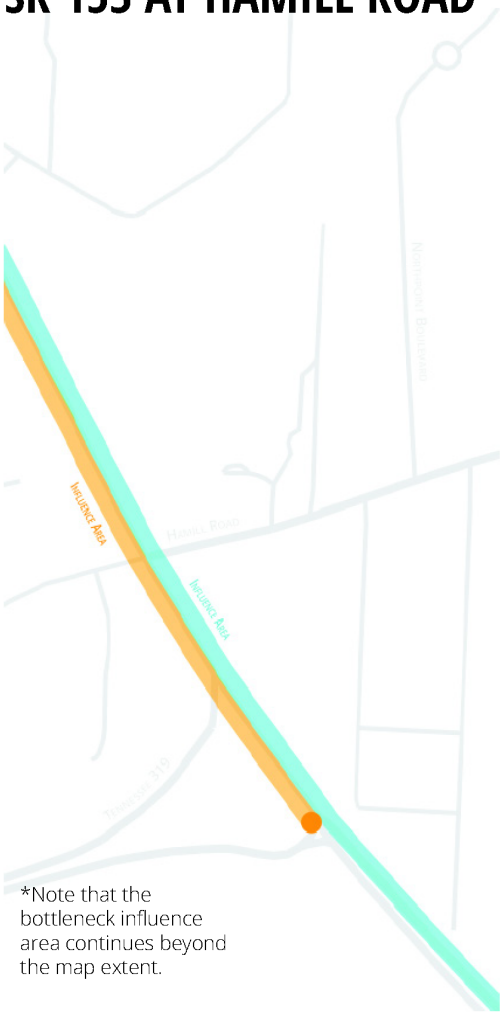
Control – Signal
Control Type – Actuated Coordinated
Transit Routes – No
Transit Stops – Yes
Sidewalk – Partial
Pedestrian Crossing – None
Bike Accommodation – Shared

SAFETY

2019 Crash Rate – 2.24
Worst Crash Severity – Fatal
Predominant Crash Type – Rear-end and Angle

Figure A-20. SR 153 and Hamill Road

SR 153 AT HAMILL ROAD



Data depicts existing congestion and does not account for existing or planned roadway projects along the corridor.

SR 153 AT HAMILL ROAD is a four-legged signalized intersection of SR 153, a major arterial and Hamill Road, a collector street. The 2019 AADT along SR 153 is 50,944 vpd north of the intersection (Station ID 33000046) and 9,501 vpd along Hamill Road to the north (Station ID 33000291).

PEAK HOUR OPERATIONS

The intersection operates at LOS D in both peaks with 53.0 seconds delay in the AM peak and 47.7 seconds delay in the PM. The signal is coordinated with a 180-second cycle length and an offset of 34 seconds in both peaks.

PEAK HOUR CONGESTION

The southbound through movement along SR 153 has a maximum 95th percentile queue of 1,142 feet with a v/c of 0.91 in the AM peak. In the PM peak, the northbound through movement has a maximum 95th percentile queue of 1,067 feet with a v/c of 0.92.

MAJOR BOTTLENECKS

The most severe bottleneck occurs along northbound SR 153 with approximately a 0.5-mile backup for an average of 2 hours per day.

AT A GLANCE

PEAK HOUR CONGESTION

AM
LOS (Delay) | D (53.0)
Max 95th Queue | 1142'

PM
LOS (Delay) | D (47.7)
Max 95th Queue | 1067'

MAJOR BOTTLENECKS

Most impactful bottleneck at SR 153 southbound

SAFETY

2019 Crash Rate – 1.95
Worst Crash Severity – Injury
Predominant Crash Type – Rear-end

INTERSECTION ATTRIBUTES

Control – Signal
Control Type – Actuated
Transit Routes – Yes
Transit Stops – No
Sidewalk – Partial
Pedestrian Crossing – Partial
Bike Accommodation – Shared

Project List and Costs

Table A-1. Project List and Costs

Solution	Corridor	Classification	Solution Type	Project Description	Estimated Capital Cost
Roadway	Cherokee Blvd (US 127/SR 8) and Bell Ave/ Gurley St	Arterial	Intersection Improvement	Intersection improvements; signal optimizations; pedestrian accommodations; provide transit/ITS enhancements (TSP)	$491,000
	Cherokee Blvd (US 127/ SR 8)/Signal Mountain Blvd (US 127)	Arterial	Corridor Improvement	Network surveillance; traffic signal improvements; traffic signal coordination and modernization; bike/ped intersection enhancements; ITS improvements on roadways with heavy truck traffic; transit signal priority and intersection queue jump lanes; roadway signage improvements; restricting turns at key intersections; access management; bottleneck improvements; intersection and interchange improvements; roadway maintenance/state of good repair; bridge repair/replacement; freight related operational improvement	$8,830,000
	Cummings Hwy/ Broad St (US 11/US 41/ US 64/US 72/ SR 2)	Arterial	Corridor Improvement	Alternate routing; traffic signal improvements; bike/ped intersection enhancements; ITS improvements on roadways with heavy truck traffic; roadway signage improvements; restricting turns at key intersections; access management; bottleneck improvements; intersection and interchange improvements; railroad crossing improvements; bridge repair/replacement; freight related operational improvement	$5,586,500

Table A-1. Project List and Costs (cont.)

Solution	Corridor	Classification	Solution Type	Project Description	Estimated Capital Cost
Roadway	Lee Hwy/ Brainerd Rd (US 11/US 64/ SR 2) and E. Brainerd Rd (SR 320)	Arterial	Intersection Improvement	Access management; intersection improvements; signal optimizations; pedestrian accommodations; evaluate adaptive signal control; evaluate transit/ITS enhancements (TSP); upgrade pavement markings and signage	$136,500
	Lee Hwy (US 11/US 64/ SR 2) and Germantown Rd	Arterial	Intersection Improvement	Access management; intersection improvements; signal optimizations; transit/ITS enhancements (TSP); widen WB approach	$904,500
	Lee Hwy (US 11/US 64/ SR 2) and I-75	Arterial	Interchange Modification	Phase 1: Access management and intersection improvements; Phase 2: Convert to DDI with access management	$2,617,500
	Lee Hwy (US 11/US 64/ SR 2) and Ooltewah Georgetown Rd	Arterial	Intersection Improvement	Phase 1: Intersection improvements; signal optimizations; increase curb radii; pedestrian accommodations; Phase 2: Convert to reduced conflict or quadrant roadway intersection	$2,797,500
	Lee Hwy (US 11/US 64/ SR 2)	Arterial	Corridor Improvement	Network surveillance; traffic signal improvements; traffic signal coordination and modernization; bike/ped intersection enhancements; restricting turns at key intersections; access management; intersection and interchange improvements; complete streets	$4,974,000

Table A-1. Project List and Costs (cont.)

Solution	Corridor	Classification	Solution Type	Project Description	Estimated Capital Cost
Roadway	Lee Hwy/ Brainerd Rd (US 11/US 64/ SR 2)	Arterial	Corridor Improvement	Network surveillance; alternate routing; traffic signal improvements; traffic signal coordination and modernization; bicycle and pedestrian intersection enhancements; transit signal priority and intersection queue jump lanes; roadway signage improvements; restricting turns at key intersections; access management; intersection and interchange improvements; complete streets	$22,857,000
	Ringgold Rd (US 41/US 76/ SR 8) and Spring Creek Rd	Arterial	Intersection Improvement	Add turn lanes; bicycle and pedestrian accommodations; signal optimizations; evaluate adaptive signal control; widen SB/WB approaches	$2,382,500
	Riverside Dr/ Amnicola Hwy	Arterial	Corridor Improvement	Network surveillance; traffic signal improvements; traffic signal coordination and modernization; bicycle and pedestrian intersection enhancements; ITS improvements on roadways with heavy truck traffic; transit signal priority and intersection queue jump lanes; roadway signage improvements; restricting turns at key intersections; access management; intersection and interchange improvements; railroad crossing improvements	$14,516,500
	Shallowford Rd and I-75	Arterial	Interchange Modification	Intersection improvements; signal optimizations; pedestrian accommodations; evaluate adaptive signal control; evaluate transit/ITS enhancements (TSP)	$1,202,500
	SR 153 and Hamill Rd	Arterial	Intersection Improvement	Access management; pedestrian accommodations; signal optimizations; evaluate adaptive signal control	$2,647,500

Table A-1. Project List and Costs (cont.)

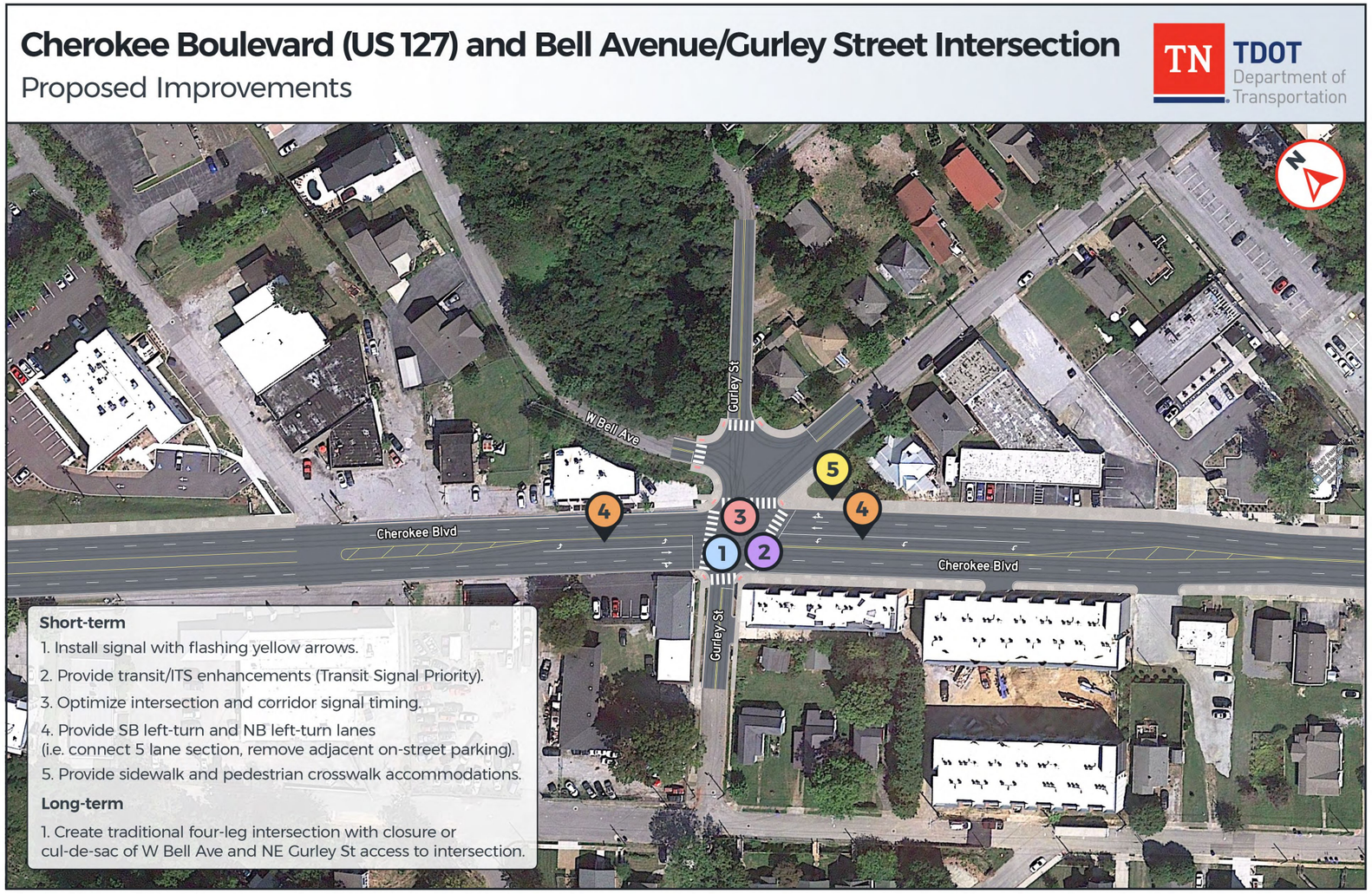
Solution	Corridor	Classification	Solution Type	Project Description	Estimated Capital Cost
Roadway	I-24: GA/TN Border to US 27 Interchange	Freeway	Ramp Metering	Phase 1: ATDM; ramp metering	$28,408,800
			Managed Lanes	Phase 2: Consider HOT lanes for the added lanes, and possibly look at double decking for added lanes	$88,160,000
	I-24: US 27 Interchange to I-75 Interchange	Freeway	Ramp Metering	Phase 1: ATDM; ramp metering	$25,792,200
			Managed Lanes	Phase 2: HOT lanes should be considered	$80,040,000
	I-24: West TPO Border to GA/TN Border	Freeway	Corridor Improvement	ATDM	$776,000
	I-75: I-24 Interchange to GA/TN Border	Freeway	Ramp Metering	Phase 1: ATDM; ramp metering	$5,233,200
			Managed Lanes	Phase 2: Truck-only lanes should be considered	$20,440,000
	I-75: I-24 Interchange to SR 153 Interchange	Freeway	Ramp Metering	Phase 1: ATDM; ramp metering	$10,840,200
			Managed Lanes	Phase 2: Truck-only lanes should be considered	$42,340,000
	I-75: SR 153 Interchange to Eastern TPO Border	Freeway	Managed Lanes	Phase 1: Truck-only lanes should be considered	$166,440,000
				Roadway Total Cost	**$538,413,900**

Table A-1. Project List and Costs (cont.)

Solution	Corridor	Classification	Solution Type	Project Description	Estimated Capital Cost
Transit	Lee Hwy/ Brainerd Rd (US 11/US 64/ SR 2) and E. Brainerd Rd (SR 320)	Arterial	Enhanced Service	Transit Signal Priority (TSP) along corridor at 21 signalized intersections	$315,000
	Riverside Dr/ Amnicola Hwy	Arterial	Enhanced Service	TSP along corridor at six signalized intersections	$90,000
	Cherokee Blvd (US 127/ SR 8)/Signal Mountain Blvd (US 127)	Arterial	Enhanced Service	TSP along corridor at 14 signalized intersections	$240,000
	Rossville Blvd (US 27)	Arterial	Park & Ride Lot	Park & Ride lot at English Ave/State St to support existing transit routes (Route 9 and Route 13)	$1,125,000
	Lee Hwy/ Brainerd Rd (US 11/US 64/ SR 2); I-75: SR 153 Interchange to Eastern TPO Border	Arterial/Freeway	Park & Ride Lot	Park & Ride lot at Hamilton Place Mall to support existing transit routes (Route 4, Route 4 Express, Dial-a-Ride Route 6)	$2,250,000
				Transit Total Cost	**$4,020,000**
				Total Cost	**$542,433,900**

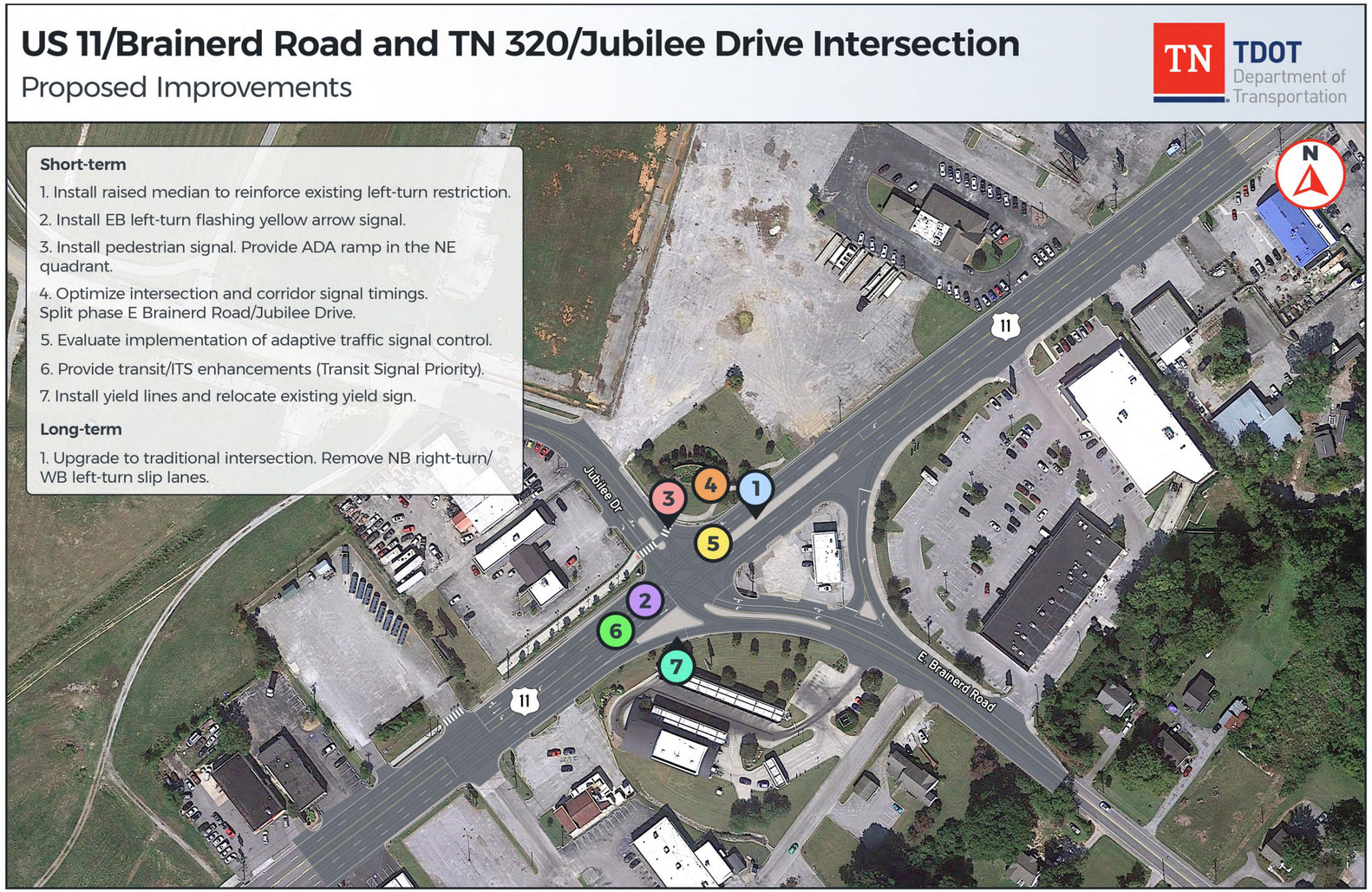
Project Concept Figures

Figure A-21. Cherokee Boulevard (US 127/SR 8) and Bell Avenue/Gurley Street



LOS		Delay (seconds per vehicle)		Approach	LOS		Delay (seconds per vehicle)		Lane Group	Synchro 95th Percentile Queue (feet)	
AM	PM	AM	PM		AM	PM	AM	PM		AM	PM
A	B	9.3	21.7	Eastbound	C	C	30.5	30.9	L-T-R	20	27
				Westbound	A	A	1.8	2.1	L-T-R	0	2
				Northbound	A	B	9.1	13.8	L	8	16
									T-R	101	324
				Southbound	B	B	10.0	12.8	L	50	85
									T-R	198	141

Figure A-22. Lee Highway/Brainerd Road (US 11/US 64/SR 8) and Jubilee Drive (SR 320)

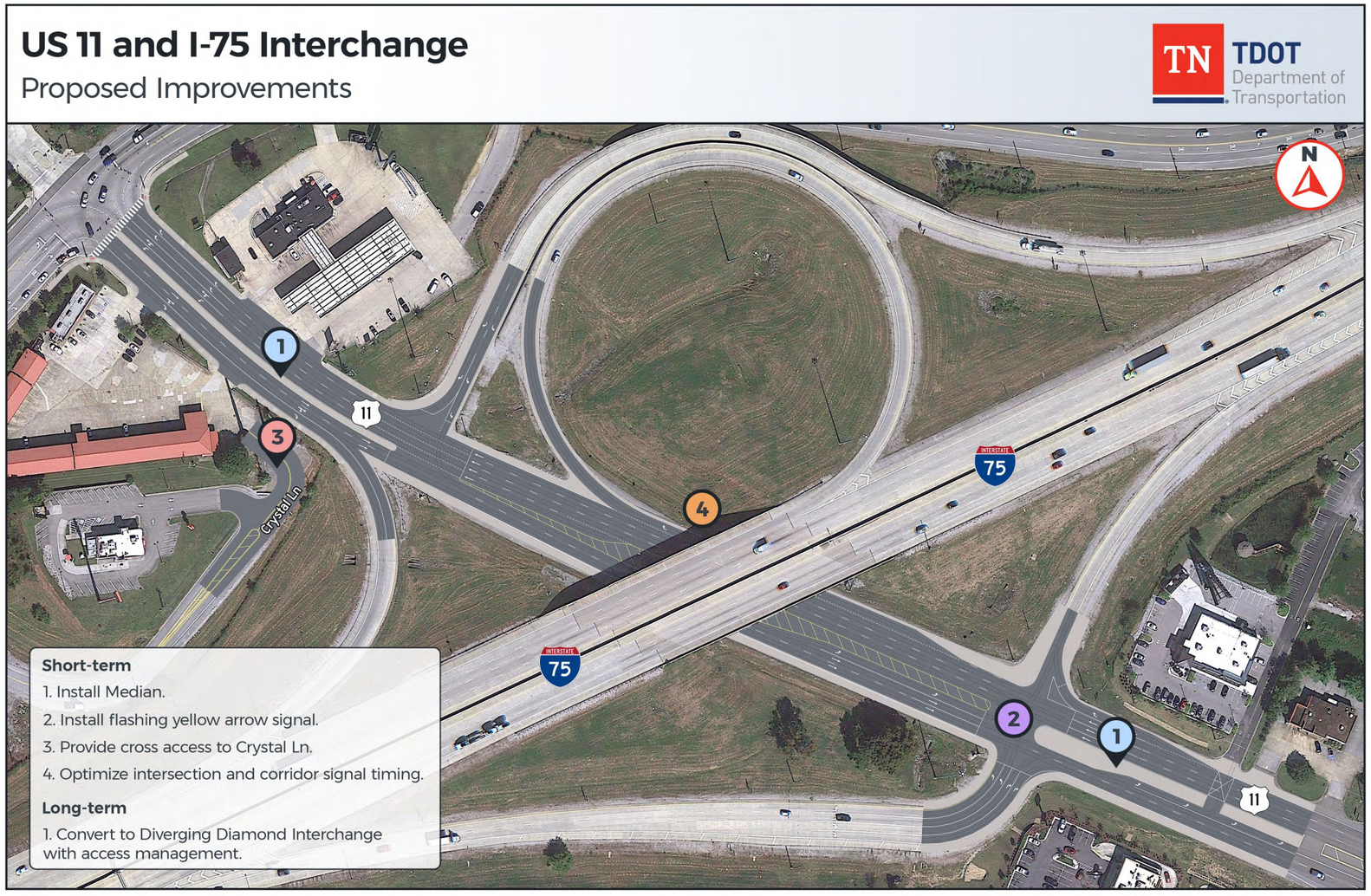


LOS		Delay (seconds per vehicle)		Approach	LOS		Delay (seconds per vehicle)		Lane Group	Synchro 95th Percentile Queue (feet)	
AM	PM	AM	PM		AM	PM	AM	PM		AM	PM
D	D	35.9	40.5	Eastbound	D	D	41.3	46.1	L-T	39	61
									R	0	0
				Westbound	*E*	*F*	67.7	103.0	L	#447	#451
									L-T	#433	#461
				Northbound	B	B	12.5	11.6	L	17	8
									T	276	527
									R	30	47
				Southbound	D	*E*	41.4	62.1	T-R	504	#741

Figure A-23. Lee Highway (US 11/US 64/SR 8) and Germantown Road

LOS		Delay (seconds per vehicle)		Approach	LOS		Delay (seconds per vehicle)		Lane Group	Synchro 95th Percentile Queue (feet)	
AM	PM	AM	PM		AM	PM	AM	PM		AM	PM
D	D	35.1	38.5	Eastbound	B	C	17.9	29.0	L	42	70
									T	193	#910
									R	20	202
				Westbound	C	C	27.6	24.5	L	48	#181
									T	547	510
									R	1	38
				Northbound	*E*	*E*	64.7	72.4	L	#555	#318
									T-R	211	283
				Southbound	D	*F*	45.3	82.8	L	130	#306
									T	190	215
									T-R	0	37

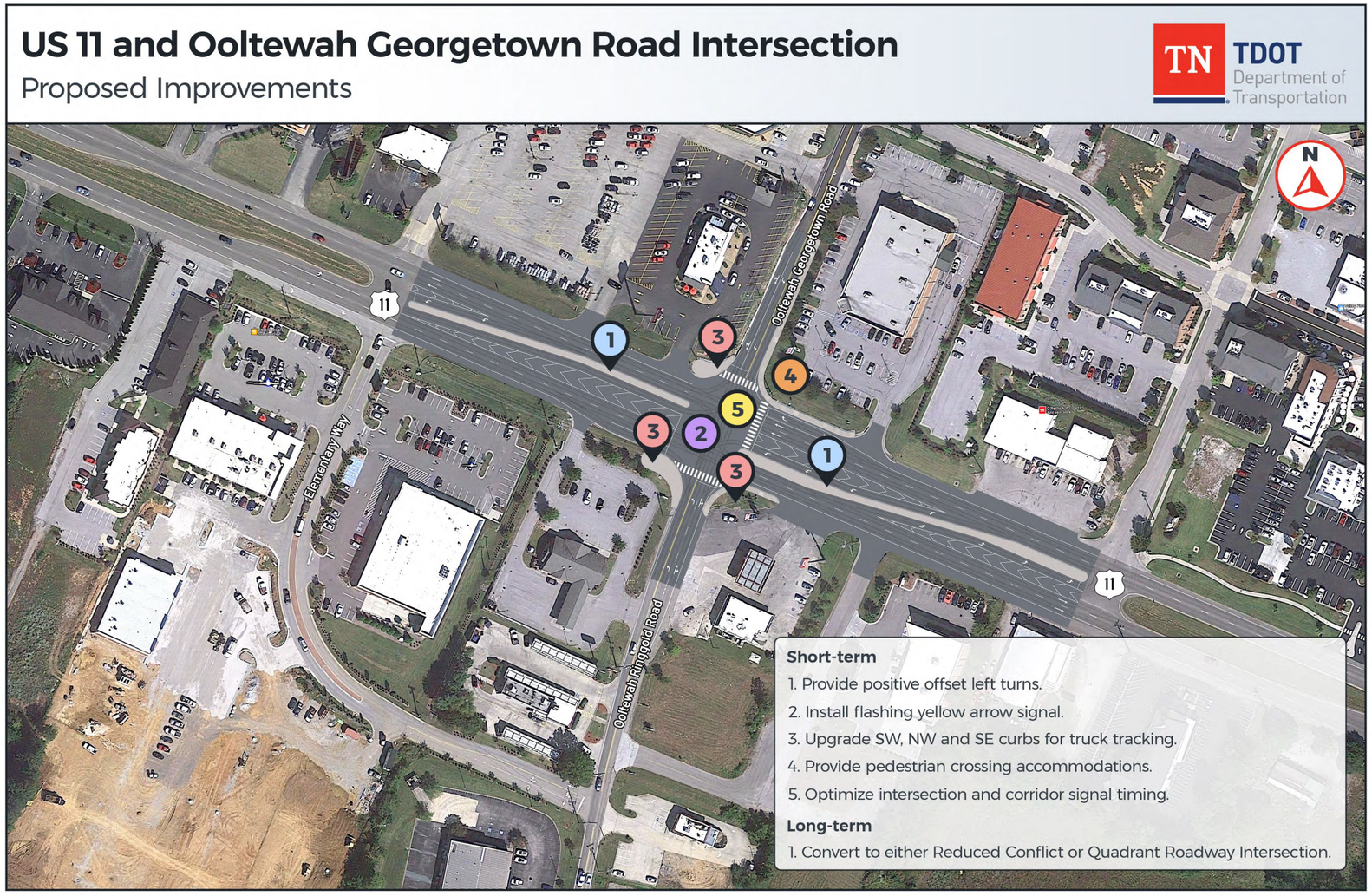
Figure A-24. Lee Highway (US 11/US 64/SR 8) and I-75



SOUTHBOUND RAMP TERMINAL											
LOS		Delay (seconds per vehicle)		Approach	LOS		Delay (seconds per vehicle)		Lane Group	Synchro 95th Percentile Queue (feet)	
AM	PM	AM	PM		AM	PM	AM	PM		AM	PM
A	A	5.7	6.1	Eastbound	A	A	4.8	6.6	T-R	208	283
									R	0	0
				Westbound	A	A	2.4	2.1	T	33	m111
									R	148	m0
				Southbound	C	C	28.2	32.5	L	169	163
									R	65	115

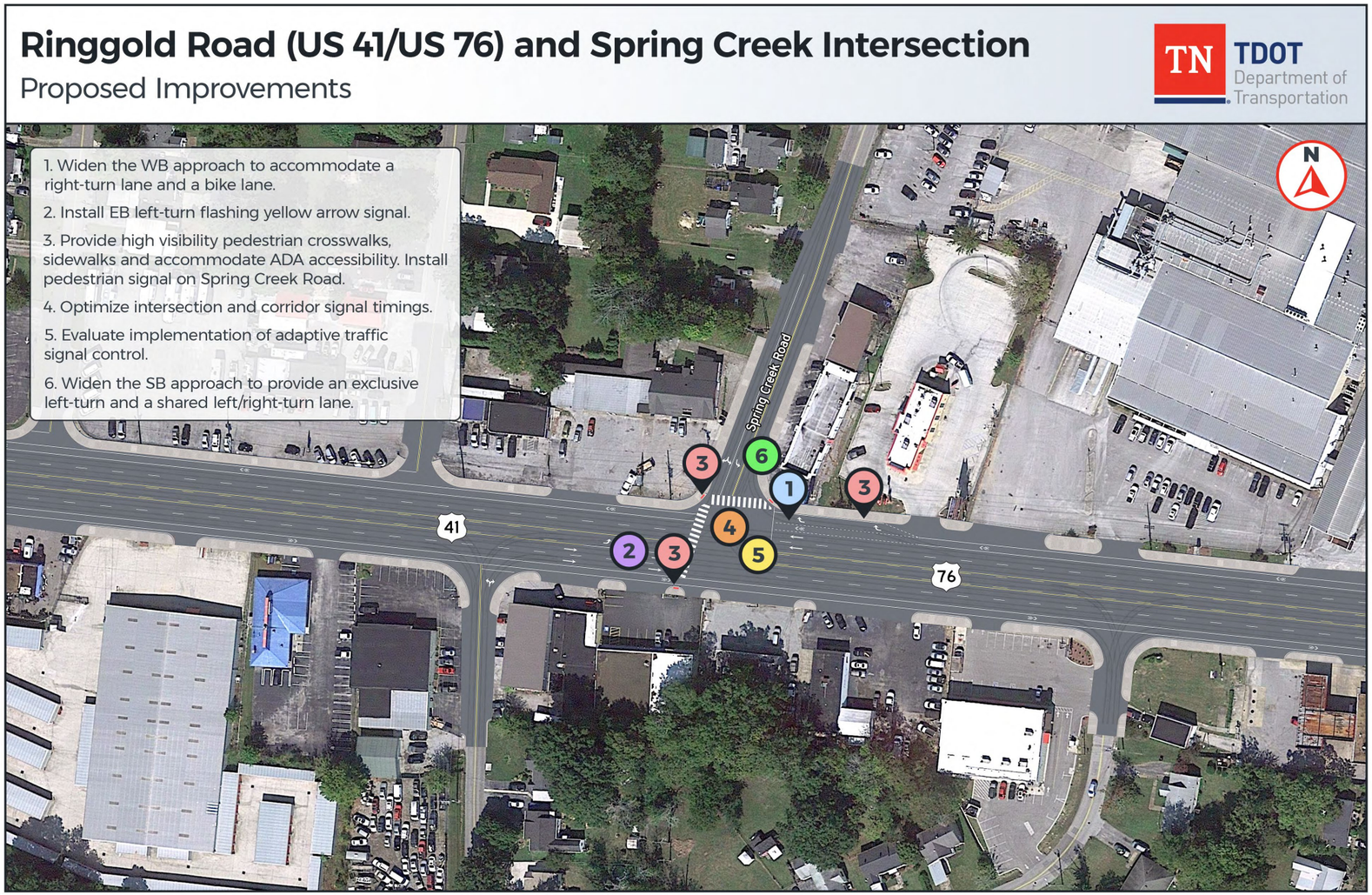
NORTHBOUND RAMP TERMINAL											
LOS		Delay (seconds per vehicle)		Approach	LOS		Delay (seconds per vehicle)		Lane Group	Synchro 95th Percentile Queue (feet)	
AM	PM	AM	PM		AM	PM	AM	PM		AM	PM
B	C	14.8	28.5	Eastbound	B	B	11.4	17.7	L	m53	m#94
									T	136	145
				Westbound	A	C	9.6	21.3	T	160	m218
									R	m0	m0
				Southbound	C	D	24.2	39.5	L	194	#491
									R	135	#384

Figure A-25. Lee Highway (US 11/US 64/SR 8) and Ooltewah Georgetown Road



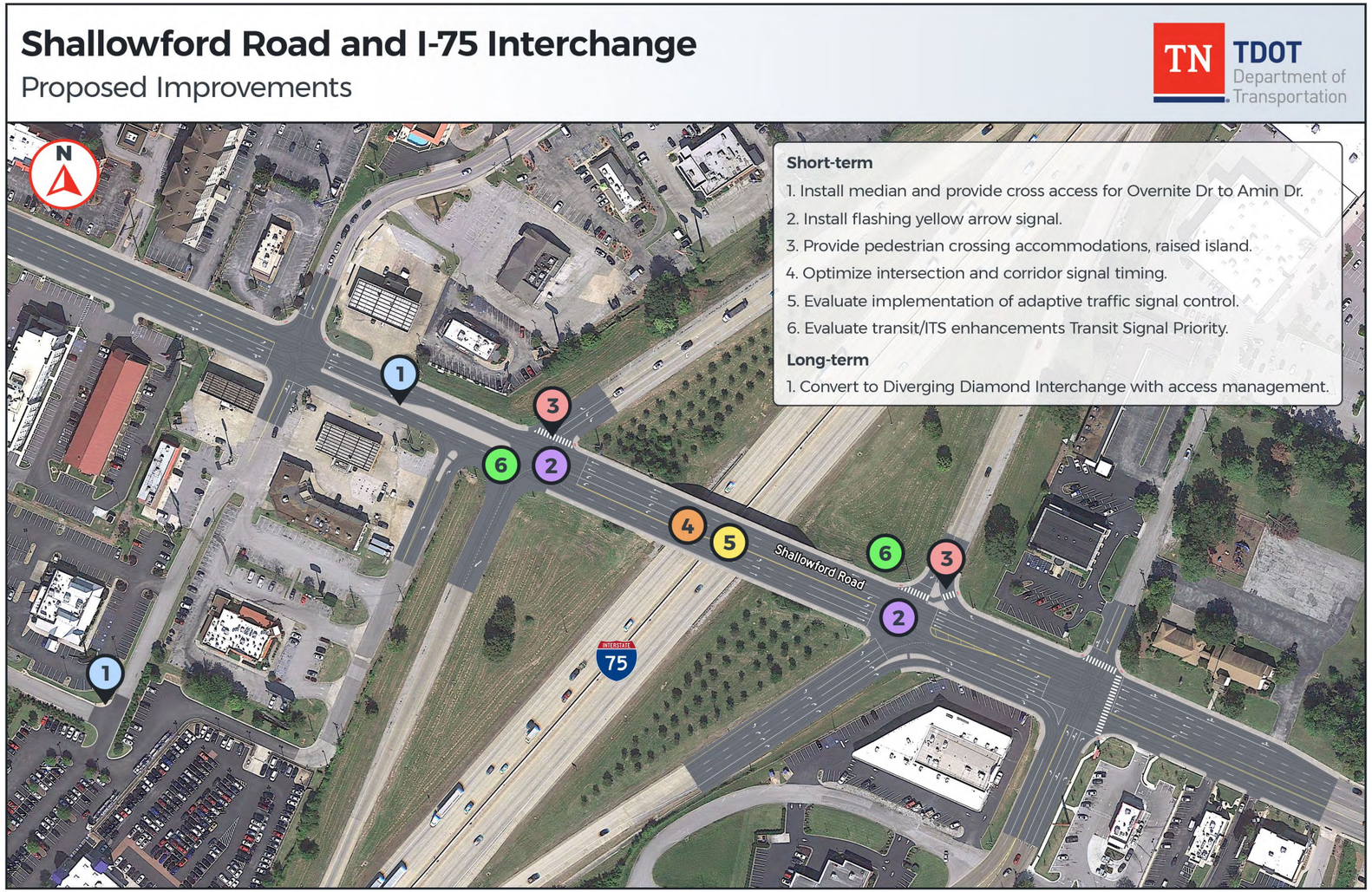
LOS		Delay (seconds per vehicle)		Approach	LOS		Delay (seconds per vehicle)		Lane Group	Synchro 95th Percentile Queue (feet)	
AM	PM	AM	PM		AM	PM	AM	PM		AM	PM
C	D	26.0	35.2	Eastbound	B	C	18.8	30.3	L-T	m#92	m#245
									T	116	m233
									R	27	m32
				Westbound	C	C	27.5	30.3	L	77	#143
									T	210	202
									R	0	27
				Northbound	C	D	22.4	38.9	L	#145	#205
									T-R	101	#351
				Southbound	D	D	37.7	54.3	L	27	49
									T-R	#316	#355

Figure A-26. Ringgold Road (US 41/US 76/SR 8) and Spring Creek Road



LOS		Delay (seconds per vehicle)		Approach	LOS		Delay (seconds per vehicle)		Lane Group	Synchro 95th Percentile Queue (feet)	
AM	PM	AM	PM		AM	PM	AM	PM		AM	PM
B	B	10.2	16.9	Eastbound	A	A	3.2	7.9	L	16	31
									T	71	312
				Westbound	A	B	5.4	11.0	T	176	364
									R	69	105
				Southbound	*E*	*E*	60.7	63.5	L-R	123	254

Figure A-27. Shallowford Road and I-75 Interchange



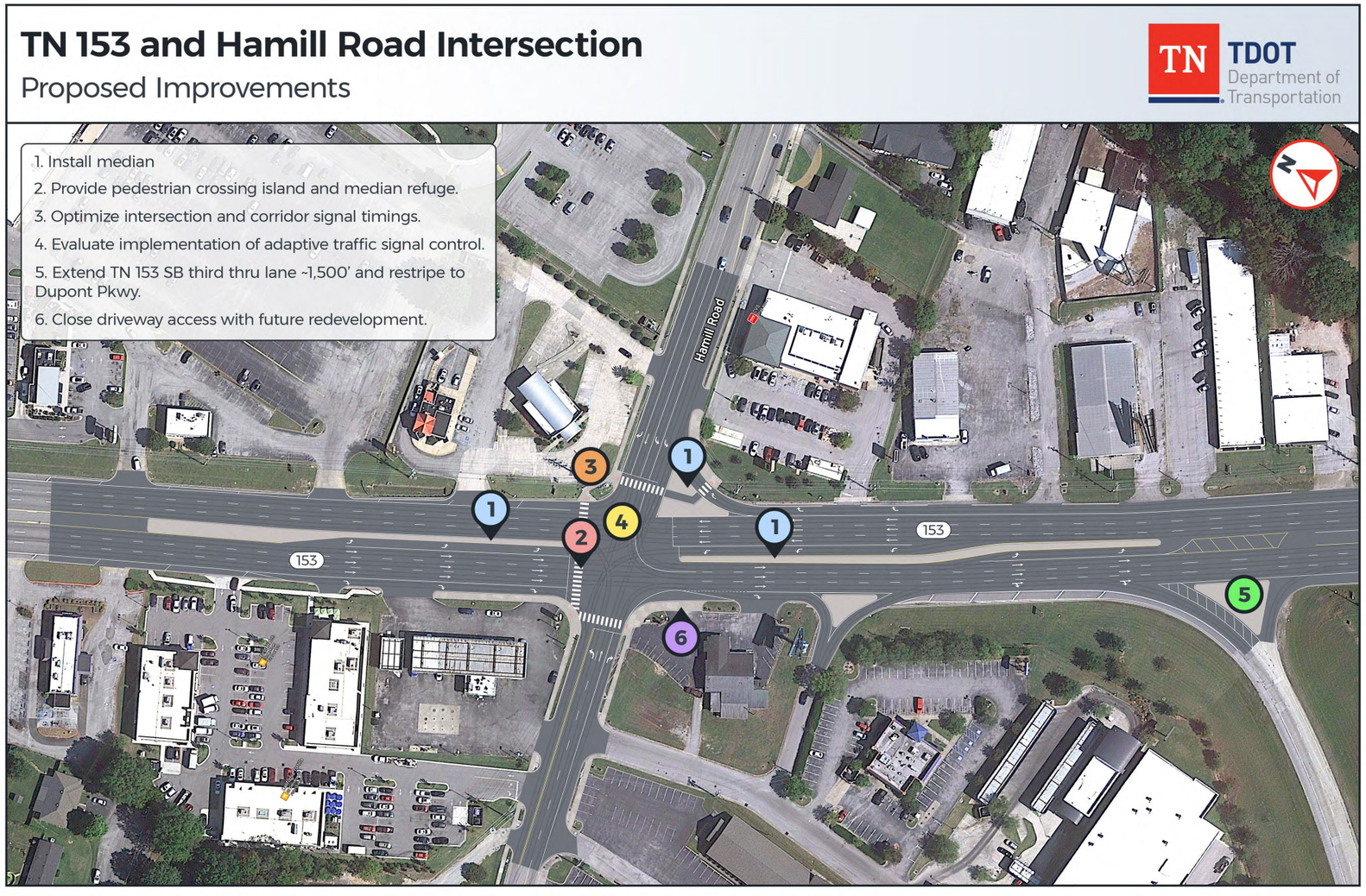
SOUTHBOUND RAMP TERMINAL

LOS		Delay (seconds per vehicle)		Approach	LOS		Delay (seconds per vehicle)		Lane Group	Synchro 95th Percentile Queue (feet)	
AM	PM	AM	PM		AM	PM	AM	PM		AM	PM
B	C	17.7	25.1	Eastbound	C	C	22.7	33.7	T-R	230	#561
				Westbound	A	A	7.8	9.6	T	m#145	m#209
									T	7	4
				Southbound	C	D	26.5	44.6	L	184	#235
									R	158	#181

NORTHBOUND RAMP TERMINAL

LOS		Delay (seconds per vehicle)		Approach	LOS		Delay (seconds per vehicle)		Lane Group	Synchro 95th Percentile Queue (feet)	
AM	PM	AM	PM		AM	PM	AM	PM		AM	PM
B	B	17.7	18.9	Eastbound	B	B	14.8	14.3	L	m31	m113
									T	254	m227
				Westbound	C	B	20.7	20.0	T	208	358
									R	0	0
				Southbound	B	C	17.6	23.6	L	#212	#247
									R	32	81

Figure A-28. SR 153 and Hamill Road



LOS		Delay (seconds per vehicle)		Approach	LOS		Delay (seconds per vehicle)		Lane Group	Synchro 95th Percentile Queue (feet)	
AM	PM	AM	PM		AM	PM	AM	PM		AM	PM
D	D	41.8	49.2	Eastbound	*E*	*E*	62.4	55.9	L	111	181
									T	210	236
									R	161	294
				Westbound	*F*	*F*	98.6	86.6	L	#355	#309
									T-R	283	417
				Northbound	B	D	18.7	43.8	L	214	#269
									T	413	#1253
									R	86	777
				Southbound	D	D	40.4	42.0	L	46	#145
									T	#1197	950
									R	0	30