

FINAL REPORT

SR 109 Access Management Study

August 2016

PREPARED FOR THE NASHVILLE AREA
METROPOLITAN PLANNING ORGANIZATION



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SR 109 ACCESS MANAGEMENT STUDY FINAL REPORT

1. INTRODUCTION

IN 2013, THE STATE OF TENNESSEE, THE NASHVILLE AREA METROPOLITAN PLANNING ORGANIZATION (NASHVILLE MPO), SUMNER COUNTY, WILSON COUNTY, THE CITY OF GALLATIN, THE CITY OF LEBANON, AND THE CITY OF PORTLAND EXECUTED THE STATE ROUTE 109 CORRIDOR MANAGEMENT AGREEMENT (SR 109 CMA). THE PURPOSE OF THE SR 109 CMA IS TO PROVIDE A FRAMEWORK FOR THE SIGNATORY AGENCIES, ORGANIZATIONS, AND GOVERNMENTS TO WORK COLLABORATIVELY IN THE DEVELOPMENT, MANAGEMENT, AND OPERATION OF SR 109 BETWEEN INTERSTATE 65 AND INTERSTATE 40 – AND, ULTIMATELY, PRESERVE AND ENHANCE THE LONG-TERM PERFORMANCE OF THE ASSET FOR BOTH THE STATE AND LOCAL COMMUNITIES. THE PRINCIPAL GOALS OF THE SR 109 CMA ARE TO:

- PROMOTE THE SAFE AND EFFICIENT OPERATION OF THE HIGHWAY CORRIDOR;
- ENHANCE AND SUSTAIN ECONOMIC DEVELOPMENT; AND
- SUPPORT ENVIRONMENTAL CONSERVATION.

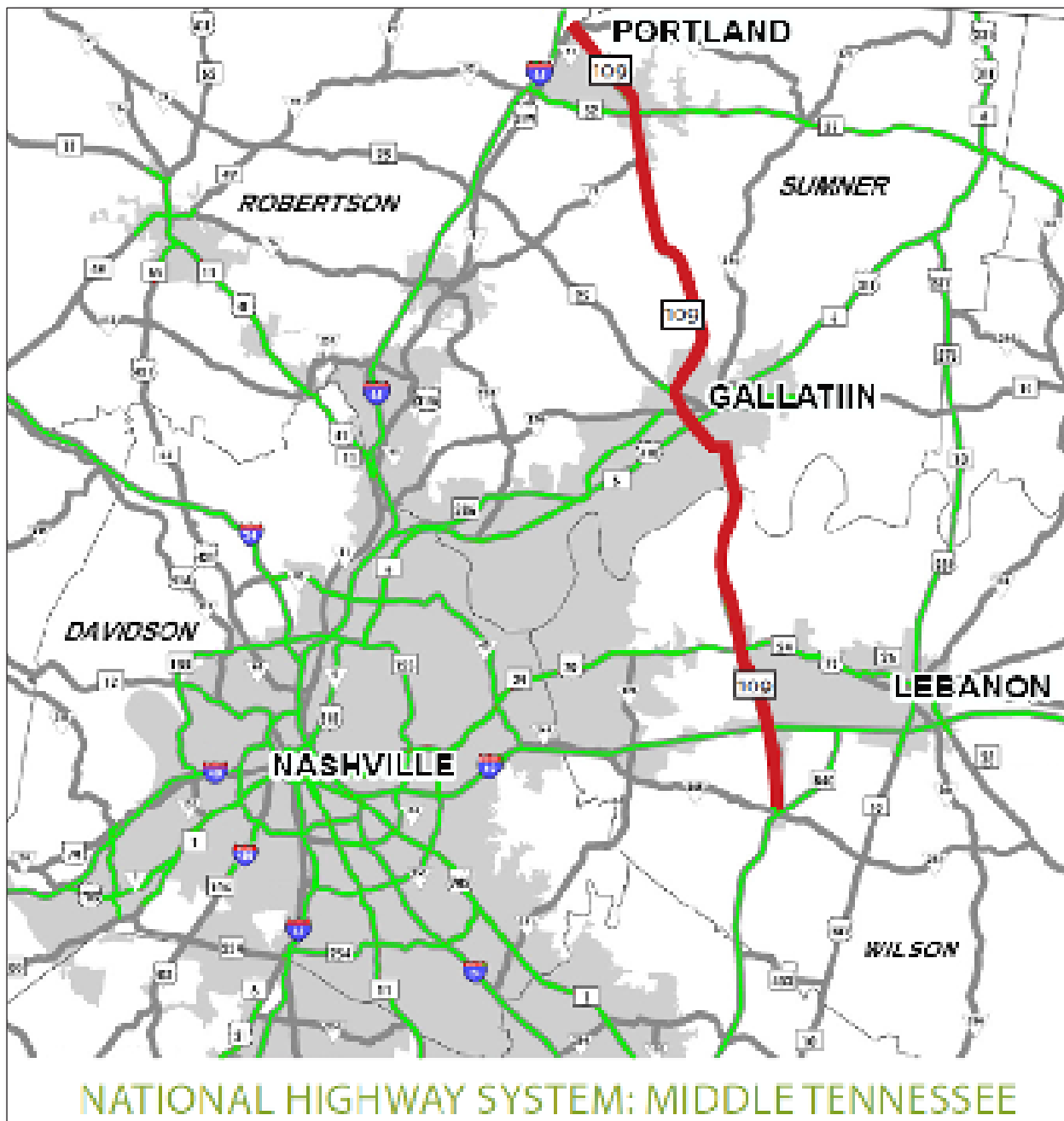
CORRIDOR MANAGEMENT IS FUNDAMENTALLY ABOUT THE LONG-TERM STEWARDSHIP OF MAJOR PUBLIC TRANSPORTATION ASSETS AND COLLABORATION ACROSS JURISDICTIONS AND AGENCIES. AS STATE AND LOCAL GOVERNMENTS ACROSS THE COUNTRY FACE THE COMBINED PRESSURES OF INCREASED ECONOMIC COMPETITION, AGING INFRASTRUCTURE, NEW DEMANDS FOR SERVICES AND FACILITIES, AND LIMITED REVENUE, THEY INCREASINGLY NEED TO MAKE STRATEGIC INVESTMENTS THAT ACHIEVE MULTIPLE GOALS AT MULTIPLE SCALES. PUTTING IN PLACE THE RIGHT POLICY AND GOVERNANCE FRAMEWORK TO SUPPORT EXISTING ASSETS AND FUTURE INVESTMENTS IS AT THE HEART OF CORRIDOR MANAGEMENT. THE CONVENTIONAL APPROACH OF VARIOUS STAKEHOLDERS WORKING LARGELY INDEPENDENT OF ONE ANOTHER AND THEN HOPING A CORRIDOR OPERATES THE WAY EACH WANTS HAS PROVEN TO BE INEFFECTIVE, COSTLY, AND DETRIMENTAL TO THE COMMUNITIES SERVED..

BUILDING ON THE SR 109 CMA, AS WELL AS THE NASHVILLE MPO'S TRI-COUNTY TRANSPORTATION AND LAND USE STUDY, THE SR 109 ACCESS MANAGEMENT STUDY (FIGURE 1-1) REPRESENTS A UNIQUE OPPORTUNITY TO DEVELOP ACCESS MANAGEMENT STANDARDS AND GUIDELINES THAT SIMULTANEOUSLY

“... THE
LONG-TERM
VALUE OF THE
ASSET ...

SUPPORT LOCAL, REGIONAL, AND STATE TRANSPORTATION AND ECONOMIC DEVELOPMENT GOALS. THIS REPORT SUMMARIZES THE KEY FINDINGS AND RECOMMENDATIONS OF THE SR 109 ACCESS MANAGEMENT STUDY, REFLECTING THE LEADERSHIP AND GUIDANCE FROM THE STUDY'S STEERING COMMITTEE AND INVALUABLE INPUT FROM CORRIDOR STAKEHOLDERS. BECAUSE THE STUDY'S RECOMMENDATIONS ARE NOT BINDING FOR ANY OF THE SR 109 CMA SIGNATORIES, SUCCESSFUL IMPLEMENTATION OF THE PROPOSED STANDARDS AND GUIDELINES DEPENDS ON EACH AGENCY AND JURISDICTION TAKING THE NECESSARY STEPS TO ADOPT THE RECOMMENDATIONS INTO THEIR APPLICABLE POLICIES, ORDINANCES, REGULATIONS, OR RULES.

FIGURE 1-1. STUDY AREA MAP



1.1 Overview of Access Management

CROSS-STREETS, DRIVEWAYS, AND ON/OFF RAMPs ARE ALL ACCESS POINTS ON A ROADWAY. SIMPLY STATED, THE PRIMARY STRATEGY OF ACCESS MANAGEMENT IS THE CONTROL OF THE FREQUENCY, LOCATION, AND DESIGN OF ALL POINTS OF VEHICULAR CONNECTIONS TO THE ROADWAY. THE PURPOSE IS TO BETTER MANAGE CONFLICTS CAUSED BY ACCESS VEHICLE MANEUVERS AND TO REDUCE THE INTERFERENCE WITH THROUGH TRAFFIC ON ARTERIAL HIGHWAYS. THESE MANEUVERS, SUBSEQUENTLY, CREATE A CERTAIN LEVEL OF CONFLICT FOR OTHER TRAVELERS IN A HIGHWAY CORRIDOR. RESEARCH HAS CLEARLY SHOWN THAT AS THE FREQUENCY OF ACCESS MANEUVERS PER MILE INCREASES, THE CRASH RATE INCREASES, AND THE SMOOTH FLOW OF TRAFFIC IS DISRUPTED, REDUCING TRAFFIC CAPACITY AND INCREASING AVERAGE TRAVEL TIMES. ACCESS MANEUVERS ARE A FACTOR IN OVER 55 PERCENT OF ALL CRASHES.

FIGURE 1-2 ILLUSTRATES THE TYPE, LOCATION, AND FREQUENCY OF VEHICLE-TO-VEHICLE ACCESS RELATED CONFLICTS THAT OCCUR NEAR AN INTERSECTION WHEN FULL MOVEMENT DRIVEWAYS ARE NEARBY. THIS ILLUSTRATION IS TYPICAL OF WIDER HIGHWAYS IN A METROPOLITAN REGION WITH FOUR TRAVEL LANES AND A CENTER TWO-WAY LEFT-TURN LANE.

WHEN A CRASH OCCURS INVOLVING LEFT TURNING AND CROSS OVER TRAFFIC, THE CRASH IS MORE LIKELY TO RESULT IN SEVERE INJURIES, ESPECIALLY IF SPEEDS ARE HIGH. WHEN A VEHICLE IS SLOWING IN TRAFFIC TO MAKE A TURN INTO AN ACCESS POINT AND THE DIFFERENCE IN THE SPEED OF THE VEHICLE SLOWING AND THE VEHICLE FOLLOWING IS MORE THAN 10 MILES PER HOUR (MPH), THE LIKELIHOOD OF A REAR-END CRASH RAPIDLY INCREASES, AND SO DOES THE SEVERITY OF THE CRASH. THIS SLOWING ALSO REDUCES TRAFFIC CAPACITY FOR

“... A FACTOR IN
OVER 55% OF
ALL CRASHES. . . .”

FIGURE 1-2. ACCESS RELATED CONFLICT POINTS

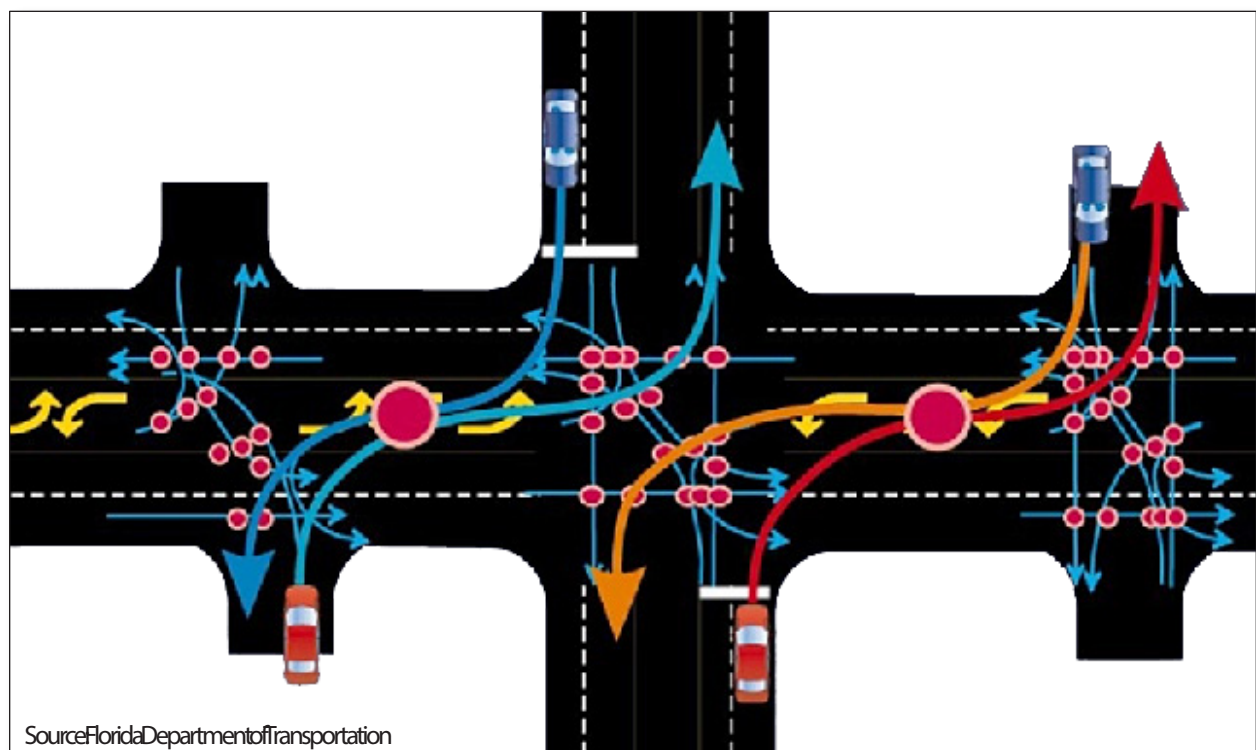


FIGURE 1-3. SR 109 AND NASHVILLE PIKE



MOTORISTS SLOWING TO WAIT FOR THE TURNING VEHICLE TO CLEAR THE LANE. IN COMBINATION, THE CONCLUSION OF TRAFFIC RESEARCH IS THAT EVERY ACCESS POINT HAS AN ADVERSE IMPACT ON TRAVEL AND SAFETY. THE DEGREE OF IMPACT VARIES WITH SPEED, TRAFFIC VOLUME, ACCESS DESIGN, AND OTHER ENGINEERING FACTORS. NO AMOUNT OF ROADWAY ENGINEERING, HOWEVER, CAN ENTIRELY MITIGATE THE ADVERSE IMPACTS, BUT IMPROVING THE DESIGN AND ENGINEERING OF ACCESS DOES HELP REDUCE THE IMPACTS.

PUBLIC FULL MOVEMENT INTERSECTIONS, AND ESPECIALLY THOSE WITH TRAFFIC SIGNALS (FIGURE 1-3), ARE USUALLY THE LOCATIONS ON A HIGHWAY WHERE THERE IS A CONCENTRATION OF CRASHES. MOREOVER, WHEN TRAFFIC SIGNALS DO NOT HAVE UNIFORM SPACING, AND SPACING IS GREATER THAN TWO SIGNALS PER MILE, EFFICIENT TRAFFIC SIGNAL PROGRESSION IS DIFFICULT AND TRAFFIC SPEEDS ARE REDUCED.

THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) "GREEN BOOK" IS THE FOREMOST NATIONAL AUTHORITY ON HIGHWAY DESIGN, FORMALLY KNOWN AS A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, AND ADOPTED BY ALL STATE DEPARTMENTS OF TRANSPORTATION. THE 2011 GREEN BOOK DEVOTES SEVEN PAGES TO THE BENEFITS AND GUIDANCE ON ACCESS MANAGEMENT. IN RESPONSE TO THE ADVERSE IMPACTS CAUSED BY ACCESS POINTS, THE FOLLOWING TECHNIQUES ARE APPLIED TO ARTERIAL HIGHWAYS:

- LIMIT THE LOCATIONS OF LEFT TURNS AND HAVE FEWER LEFT TURN LOCATIONS PER MILE. A TYPICAL DESIGN TECHNIQUE IS TO INSTALL A RAISED MEDIAN, ESPECIALLY WHERE THERE ARE FREQUENT MARGINAL ACCESS POINTS.

- CAREFULLY DESIGN EACH LEFT TURN LOCATION TO MINIMIZE SPEED DIFFERENTIALS BETWEEN TURNING VEHICLES AND THROUGH TRAFFIC. THIS USUALLY INVOLVES A FULL DESIGN LENGTH DECELERATION LANE FOR BOTH LEFT AND RIGHT TURNS.
- LIMIT THE FREQUENCY OF ACCESS POINTS AND RELATED MANEUVERS.
- IMPROVE EACH MARGINAL ACCESS POINT SO THE VEHICLE'S ACCESS MANEUVERS ARE SMOOTH AND NOT DELAYED, AND DO NOT CREATE A SPEED DIFFERENTIAL IN EXCESS OF 10 MPH WITH VEHICLES FOLLOWING.
- CAREFULLY PLAN THE LOCATION OF PUBLIC INTERSECTIONS TO ACHIEVE UNIFORM AND LONGER SPACING, AND CONSIDER USE OF A ROUNDABOUT AS AN INTERSECTION SAFETY SOLUTION.
- AS ACCESS IS REDUCED ON THE ARTERIAL, IT IS NECESSARY TO IMPROVE THE ACCESSIBILITY OF THE SECONDARY STREET SYSTEM TO PROVIDE GOOD PROPERTY ACCESS AND CONVENIENT CIRCULATION OF TRAFFIC TO THE ARTERIAL INTERSECTIONS.

“LIMIT THE
FREQUENCY
OF ACCESS
POINTS . . .





SECTION 10-H-E-1619-2.0.0.
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2. CORRIDOR VISION, GOALS, AND PERFORMANCE MEASURES

EXTENDING FROM INTERSTATE 840 TO INTERSTATE 65, SR 109 LIES ENTIRELY WITHIN SUMNER AND WILSON COUNTIES IN MIDDLE TENNESSEE. SUMNER AND WILSON COUNTIES ARE INCLUDED IN THE NASHVILLE-DAVIDSON-MURFREESBORO-FRANKLIN, TN, METROPOLITAN STATISTICAL AREA (MSA), AND SIMILAR TO OTHER PARTS OF THE REGION, HAVE EXPERIENCED STRONG GROWTH OVER THE PAST TWO DECADES. BOTH COUNTIES AND MANY OF THEIR CITIES ARE PROJECTED TO ADD POPULATION AND EMPLOYMENT IN THE NEXT 25 YEARS (TABLE 2-1).

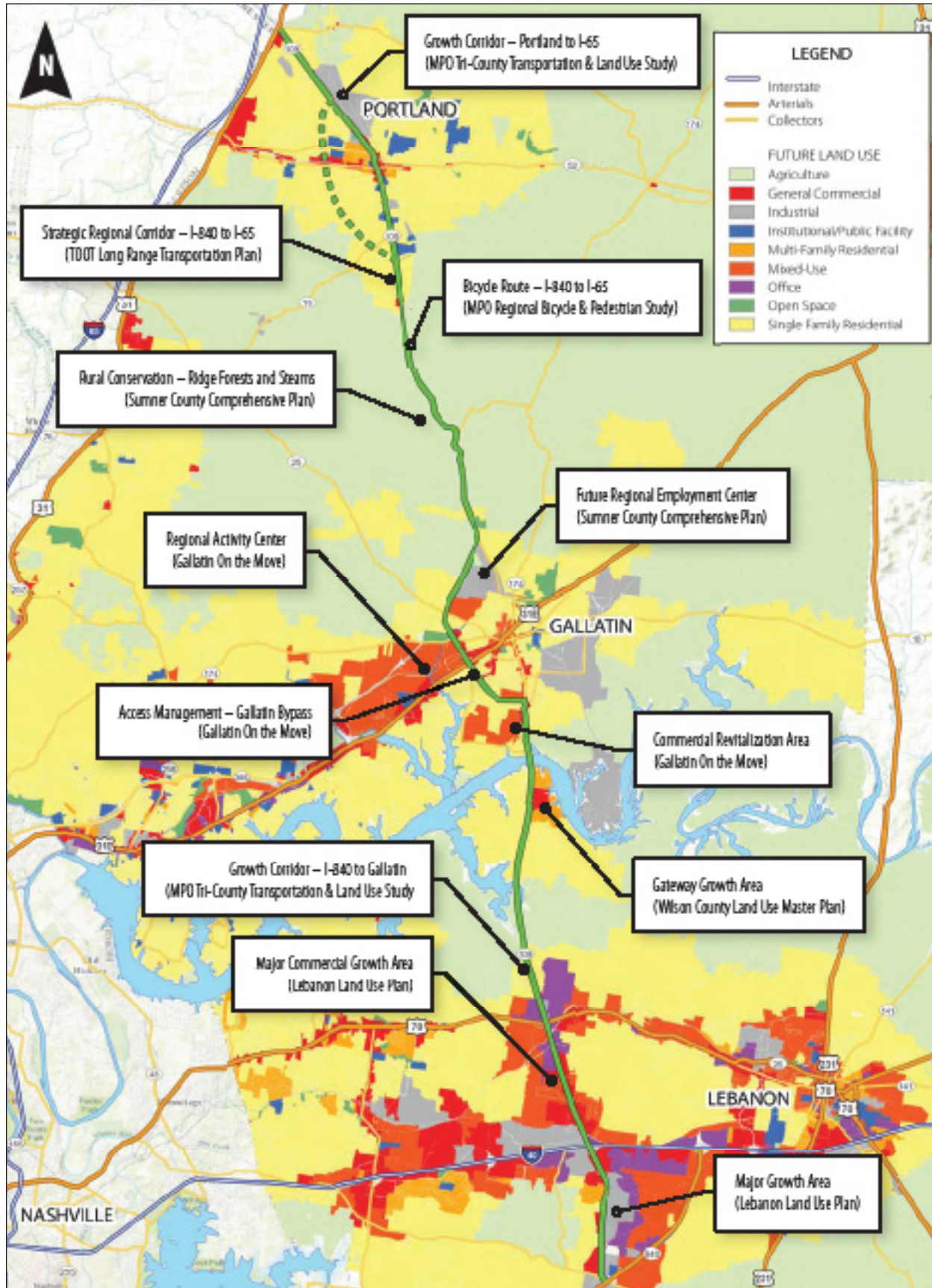
SUMNER AND WILSON COUNTIES, AS WELL AS THE CITIES OF GALLATIN, LEBANON, AND PORTLAND, ARE WELL-SERVED BY A NUMBER OF PLANS AND STUDIES THAT GUIDE LOCAL GROWTH AND DEVELOPMENT. FIGURE 2-1 HIGHLIGHTS SOME OF THE MAJOR GOALS AND OBJECTIVES IDENTIFIED IN EXISTING LOCAL PLANS AND STUDIES, AS WELL AS THE UNDERLYING CORRIDOR-WIDE LAND USE VISION DEVELOPED AS PART OF THE NASHVILLE MPO'S 2011 TRI-COUNTY TRANSPORTATION AND LAND USE STUDY. TAKEN TOGETHER, THE LOCAL PLANS AND STUDIES AND THE LAND USE VISION PROVIDE A STRONG FOUNDATION FOR EVALUATING AND APPLYING ACCESS MANAGEMENT STRATEGIES IN THE SR 109 CORRIDOR.

TABLE 2-1. EXISTING AND PROJECTED POPULATION AND EMPLOYMENT

	 POPULATION			 EMPLOYMENT		
	EXISTING (2012)	PROJECTED (2040)	PERCENT CHANGE	EXISTING (2012)	PROJECTED (2040)	PERCENT CHANGE
SUMNER COUNTY (TOTAL)	164,949	237,096	43.7%	57,269	95,976	67.6%
GALLATIN	37,669	63,332	68.1%	16,754	36,571	118.3%
GOODLETTSVILLE (SUMNER ONLY)	6,527	8,569	31.3%	1,394	1,912	37.2%
HENDERSONVILLE	56,933	74,268	30.4%	20,662	35,037	69.6%
MILLERSVILLE	5,791	7,096	22.5%	1,214	1,764	45.3%
MITCHELLSVILLE	137	196	42.9%	15	15	0.0%
PORTLAND	17,565	27,846	58.5%	6,262	8,640	38.0%
WESTMORELAND	3,528	4,849	37.4%	1,263	1,446	14.5%
WHITE HOUSE (SUMNER ONLY)	7,319	10,348	41.4%	1,195	1,309	9.5%
WILSON COUNTY (TOTAL)	120,724	228,611	89.4%	53,935	102,437	89.9%
LEBANON	37,670	63,179	67.7%	30,124	64,797	115.1%
MOUNT JULIET	38,645	71,904	86.1%	12,738	22,680	78.1%
WATERTOWN	2,911	4,180	43.6%	744	827	11.1%

*Source: Nashville MPO 2040 Land Use Model

FIGURE 2-1. EXISTING PLANS & STUDIES - KEY FINDINGS



2.1 Corridor Vision and Goals

BUILDING ON THE PRIOR PLANS, STUDIES, AND A CORRIDOR-WIDE VISION, THE SR 109 ACCESS MANAGEMENT STUDY RELIED ON TWO ADDITIONAL SOURCES OF GUIDANCE TO DEVELOP A UNIFIED VISION FOR THE 39-MILE LONG CORRIDOR: PUBLIC INPUT ON CORRIDOR PRIORITIES AND DIRECTION FROM A PROJECT STEERING COMMITTEE CONSISTING OF LOCAL, REGIONAL, AND STATE OFFICIALS. DURING THE COURSE OF THE STUDY, TWO ROUNDS OF PUBLIC WORKSHOPS WERE HELD AND ATTENDED BY MORE THAN 310 PEOPLE IN FIVE LOCATIONS (FIGURE 2-2). THE STUDY'S STEERING COMMITTEE ALSO MET FOUR TIMES OVER A 12-MONTH PERIOD. COLLECTIVELY, THE PUBLIC INPUT AND COMMITTEE GUIDANCE RESULTED IN THE FOLLOWING SR 109 CORRIDOR VISION STATEMENT:

Linking local communities to the metropolitan region and global economy, State Route 109 will be a safe, limited access controlled highway that provides efficient travel between Interstate 65, Interstate 40, and Interstate 840 in middle Tennessee and is complemented by strong local street networks in existing or planned growth areas.

TO HELP REALIZE THIS VISION AND ACCOMMODATE PROJECTED GROWTH, CORRIDOR STAKEHOLDERS IDENTIFIED SIX SUPPORTING GOALS:

- MAXIMIZE SAFETY FOR ALL TRAVELERS;
- MAINTAIN EFFICIENT TRAVEL TIMES;
- IMPROVE ACCESS TO AND FROM SR 109;
- INCREASE LOCAL STREET CONNECTIVITY;
- PRESERVE COMMUNITY CHARACTER; AND
- SUPPORT ECONOMIC DEVELOPMENT.



FIGURE 2-2.
PUBLIC WORKSHOP –
GALLATIN CIVIC CENTER

2.2 Performance Measures

TRANSLATING THE CORRIDOR VISION AND GOALS INTO OBJECTIVES AND RECOMMENDATIONS RELIED ON BOTH UNDERSTANDING EXISTING CONDITIONS AND TRENDS IN THE CORRIDOR AND DEFINING A SERIES OF APPLIED STRATEGIES TO ACHIEVE THE GOALS. THE ANALYSIS OF EXISTING CONDITIONS AND TRENDS FOCUSED ON THREE INTERRELATED CORRIDOR PERFORMANCE MEASURES – CRASH HISTORY, ACCESS POINTS, AND TRAVEL TIMES. TO HELP EVALUATE TRANSPORTATION CONDITIONS ALONG SR 109, THE CORRIDOR WAS DIVIDED INTO FIVE SEGMENTS AND FOURTEEN SUB-SEGMENTS (FIGURE 2-3). THE SEGMENTS AND SUB-SEGMENTS, REFLECTING EXISTING AND PLANNED LAND USES, ALSO SERVED AS THE BASIS FOR APPLYING ACCESS MANAGEMENT CLASSIFICATIONS. TABLES 2 AND 3 DOCUMENT EXISTING AND PROJECTED TRAFFIC VOLUMES, ACCESS POINTS, AND CRASH HISTORY.

THE HIGHEST CRASH LOCATIONS ON SR 109 ARE CONCENTRATED IN SEGMENTS WITH MAJOR INTERSECTIONS – FOR EXAMPLE, AT I-40, ACADEMY ROAD, US 31E, SR 374, SR 25, AND SR 52. PLANNED ROADWAY IMPROVEMENTS SHOULD HELP MITIGATE SAFETY ISSUES AT SEVERAL OF THESE LOCATIONS, PARTICULARLY AT ACADEMY ROAD IN WILSON COUNTY AND AT SR 52 AFTER THE PORTLAND BYPASS IS CONSTRUCTED. FUTURE GROWTH AND DEVELOPMENT, HOWEVER, WILL GENERATE NEW DEMANDS FOR ACCESS POINTS ON SR 109

FIGURE 2-3. SR 109 STUDY SEGMENTS

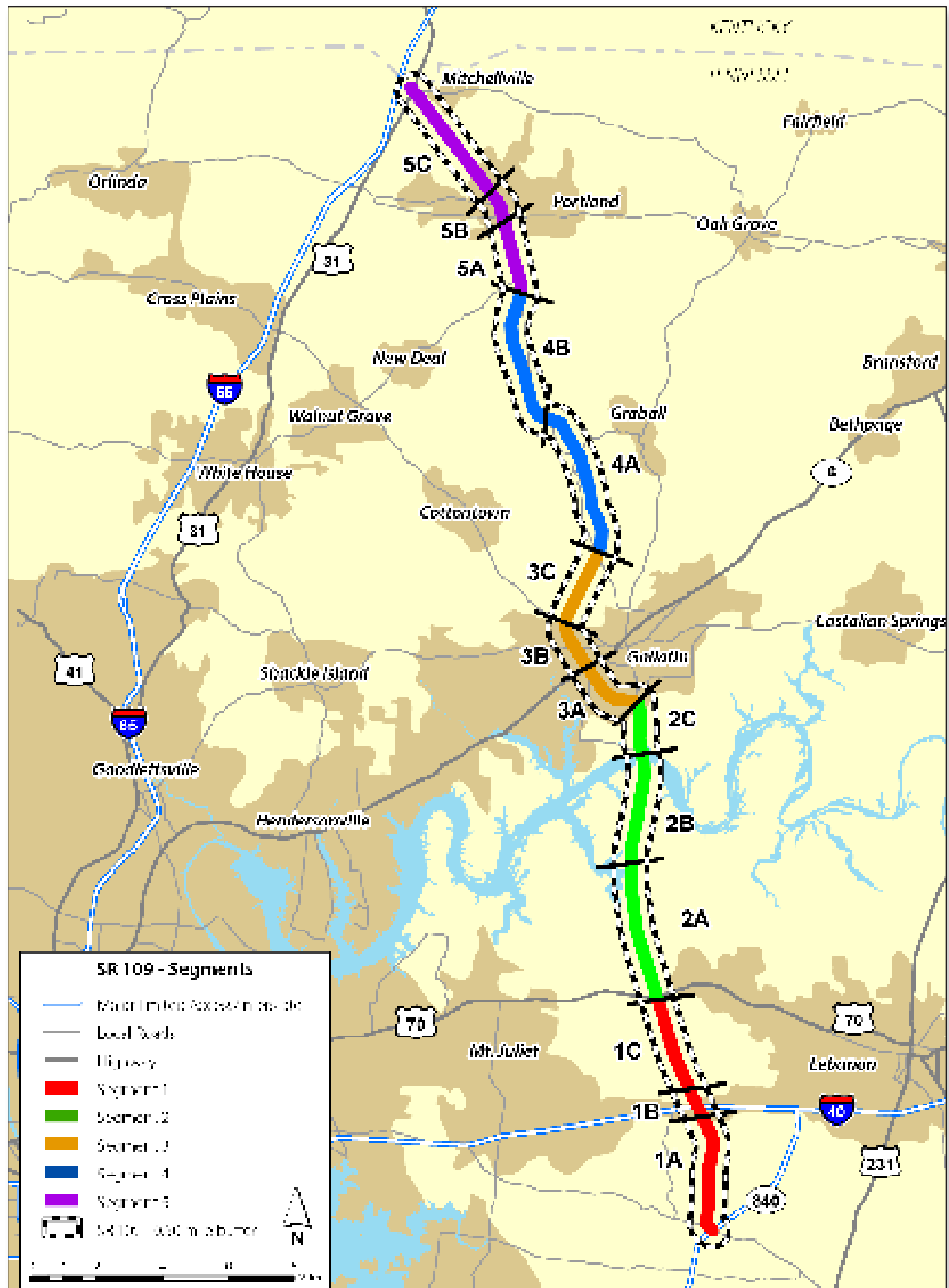




TABLE 2-2. EXISTING AND PROJECTED TRAFFIC VOLUMES



SEGMENT	FROM	TO	LENGTH (MILES)	TRAFFIC VOLUME 2012	TRAFFIC VOLUME 2040	CHANGE IN TRAFFIC VOLUME	PERCENT TRUCKS 2012	PERCENT TRUCKS 2040	CHANGE IN PERCENT TRUCKS
1A	I-840	Safari Camp Road	3.72	14,070	32,545	131%	12%	24%	100%
1B	Safari Camp Road	Hickory Ridge Road	0.87	23,522	46,931	100%	11%	18%	24%
1C	Hickory Ridge Road	US 70 / Lebanon Rd	2.93	21,400	26,387	23%	14%	25%	78%
2A	US 70 / Lebanon Rd	Academy Road	4.20	18,840	33,474	78%	4%	21%	428%
2B	Academy Road	Cumberland River Bridge	3.38	17,340	48,753	181%	4%	16%	308%
2C	Cumberland River Bridge	Gallatin Bypass / Airport Rd	1.58	17,340	45,903	165%	4%	16%	261%
3A	Gallatin Bypass / Airport Rd	US 31E / Nashville Pike	2.12	21,339	26,758	25%	4%	18%	305%
3B	US 31E / Nashville Pike	SR 25	1.50	17,113	24,613	44%	8%	16%	108%
3C	SR 25	Old State Highway 109	2.24	10,777	19,721	83%	10%	12%	21%
4A	Old State Highway 109	Academy Road / Rim Road	4.87	10,500	21,944	109%	10%	9%	-12%
4B	Academy Road / Rim Road	Academy Road / South Broadway	4.06	11,060	10,205	-8%	10%	14%	36%
5A *	Academy Road / South Broadway	Oak Street / State Highway 52	2.38	12,795	7,149	-44%	75%	6%	-92%
5B *	Oak Street / State Highway 52	Morningside Drive	1.03	9,920	6,495	-35%	10%	3%	-73%
5C *	Morningside Drive	US 31W / Nashville Road	3.79	9,060	8,135	-10%	11%	4%	-64%

*Note: The decrease in traffic on Segment 5 reflects the MPO model assuming completion of the Portland bypass. The MPO model does not incorporate the future I-65 interchange.

TABLE 2-3. EXISTING ACCESS POINTS AND CRASH HISTORY



SEGMENT	FROM	TO	TOTAL ACCESS POINTS	ACCESS POINTS PER MILE	TOTAL CRASHES (2011-2013)	CRASH RATE (PER MVMT)	STATEWIDE AVERAGE CRASH RATE (PER MVMT)	RATIO OF CRASH RATE TO STATEWIDE AVERAGE (PERCENTAGE)
1A	I-840	Safari Camp Road	12	3.2	61	1	1.78	58%
1B	Safari Camp Road	Hickory Ridge Road	22	25.3	196	5	2.47	218%
1C	Hickory Ridge Road	US 70 / Lebanon Rd	74	25.3	58	1	2.47	44%
2A	US 70 / Lebanon Rd	Academy Road	79	18.8	128	1	1.59	93%
2B	Academy Road	CumberlandRiverBridge	64	18.9	111	2	1.59	111%
2C	CumberlandRiverBridge	GallatinBypass/AirportRd	56	35.4	89	3	2.33	121%
3A	GallatinBypass/AirportRd	US 31E / Nashville Pike	4	1.9	122	3	1.78	143%
3B	US 31E / Nashville Pike	SR 25	10	6.7	172	6	1.78	328%
3C	SR 25	OldStateHighway109	2	0.9	32	1	1.78	63%
4A	OldStateHighway109	AcademyRoad/RimRoad	34	7.0	37	1	0.73	90%
4B	AcademyRoad/RimRoad	AcademyRoad/South Broadway	47	11.6	57	1	0.73	160%
5A	AcademyRoad/South Broadway	OakStreet/State-highway52	139	58.4	103	3	2.47	120%
5B	OakStreet/State-highway52	Morningside Drive	69	67.0	59	5	3.22	163%
5C	Morningside Drive	US31W/NashvilleRoad	90	23.7	79	2	2.33	90%

MVMT = Million Vehicle Miles Traveled

RESULT IN INCREASED SAFETY AND OPERATIONAL PRESSURES ON THE HIGHWAY.

KEY SAFETY FINDINGS OF THE STUDY INCLUDED:

- BETWEEN 2011-2013, SR 109 AVERAGED MORE THAN 430 CRASHES PER YEAR; AND
- 30 PERCENT OF THE CRASHES RESULTED IN INJURIES, INCLUDING 11 FATALITIES — SIX OF THE FATALITIES OCCURRED BETWEEN US 70 AND THE GALLATIN BYPASS.

THE NUMBER OF ACCESS POINTS PLAYS A CRITICAL ROLE IN THE SAFETY AND OPERATIONS OF ANY ROADWAY, INCREASING THE NUMBER OF CONFLICT POINTS AND “FRICTION” IN THE TRANSPORTATION SYSTEM. KEY TAKEAWAYS INCLUDE:

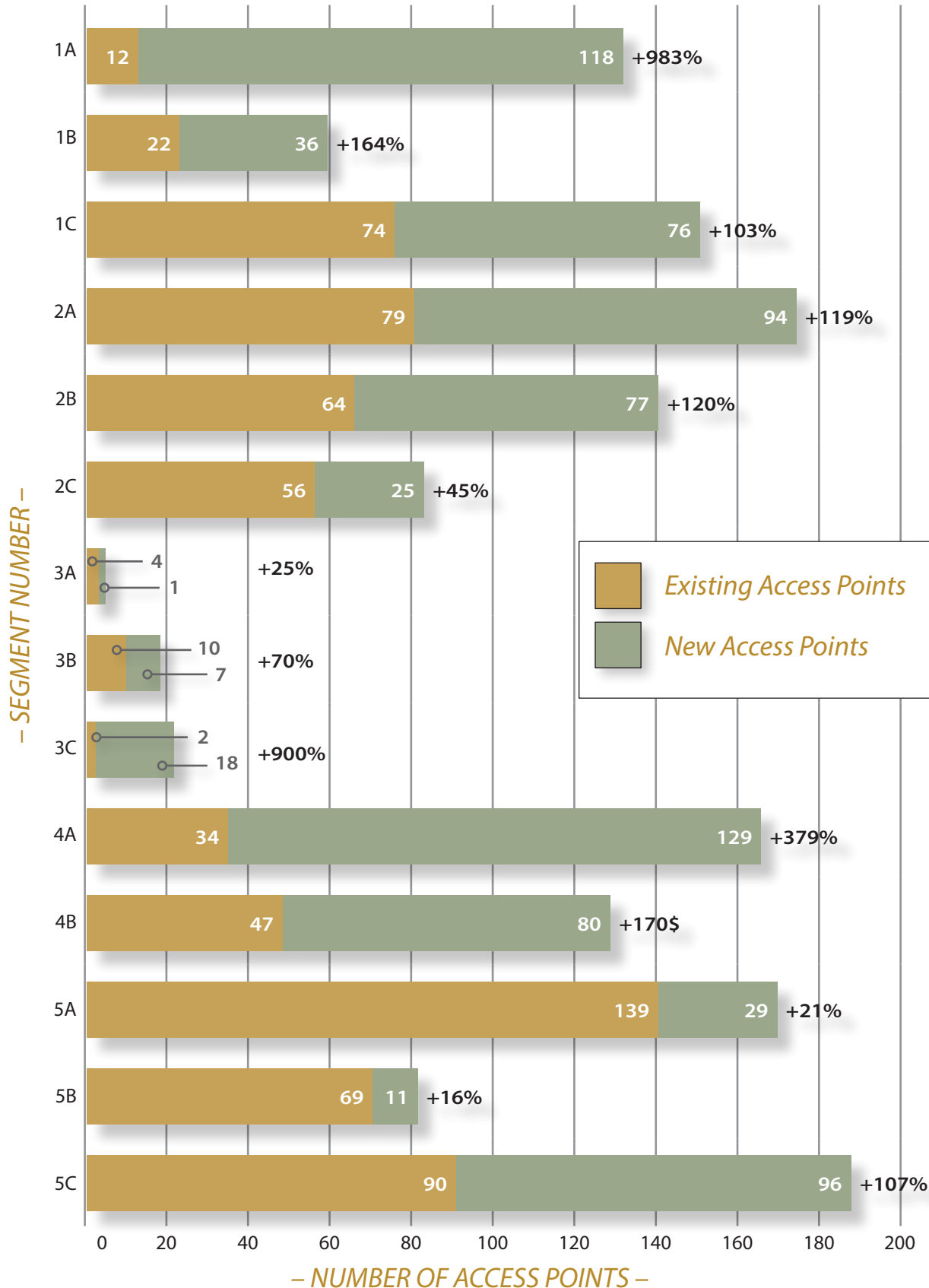
- THERE A TOTAL OF 702 ACCESS POINTS ON SR 109 – 107 CROSS-STREETS, 572 DRIVEWAYS, 11 ON-RAMPS AND 12 OFF-RAMPS;
- SR 109 BETWEEN I-40 AND HICKORY RIDGE ROAD IN LEBANON AND ACADEMY ROAD AND SR 52 IN PORTLAND HAVE THE GREATEST CONCENTRATION OF SIGNALIZED INTERSECTIONS, WITH 4.6 SIGNALS PER MILE AND 3.9 SIGNALS PER MILE, RESPECTIVELY;
- 499 OF THE DRIVEWAYS, OR 87 PERCENT, ARE FULL-ACCESS DRIVEWAYS; AND
- MOST DEVELOPED PARCELS DO NOT CONNECT TO EACH OTHER, BUT INSTEAD RELY EXCLUSIVELY ON SR 109 FOR CROSS ACCESS MOVEMENT.

THE SEGMENTS BETWEEN I-840 AND I-40, US 70 AND THE CUMBERLAND RIVER, AND NORTH OF THE GALLATIN BYPASS MAY FACE THE GREATEST DEMAND FOR NEW ACCESS POINTS IN THE FUTURE, AND CONSEQUENTLY, ARE AT THE GREATEST FOR LOWER QUALITY OF TRAVEL RISK FROM BOTH SAFETY AND OPERATIONAL PERSPECTIVES. FIGURE 2-4 DOCUMENTS THE NUMBER OF EXISTING AND POTENTIAL ACCESS POINTS ON SR 109 UNDER A BUILD-OUT SCENARIO OF THE CORRIDOR. THE TOTAL NUMBER OF ACCESS POINTS COULD MORE THAN DOUBLE, FROM 702 TO 1,499, RESULTING IN A CORRESPONDING INCREASE IN SAFETY AND OPERATIONAL PROBLEMS.

TODAY, TRAVEL TIMES ALONG THE 39-MILE CORRIDOR ARE GENERALLY GOOD, WITH PEAK HOUR DELAYS ADDING APPROXIMATELY SEVEN MINUTES TO A TYPICAL 47 MINUTE CORRIDOR-LONG TRIP UNDER FREE FLOW CONDITIONS — OR SPEEDS AVERAGING ABOUT 42 MILES PER HOUR. WITH INCREASING TRAFFIC VOLUMES AND POTENTIAL NEW ACCESS POINTS, ESPECIALLY NEAR MAJOR INTERCHANGES AND INTERSECTIONS, TRAVEL DELAYS WILL INCREASE. ACCORDING TO THE HIGHWAY CAPACITY MANUAL, FOR EVERY ADDITIONAL 10 ACCESS POINTS PER MILE ON A CORRIDOR, FREE FLOW SPEEDS DECLINE 2.5 MILES PER HOUR. USING RECOMMENDED POSTED SPEEDS FOR DIFFERENT ACCESS SPACING CONDITIONS, I.E., MINIMUM CONNECTION SPACING, FREE FLOW TRAVEL TIMES FOR THE CORRIDOR COULD DURING PEAK PERIODS INCREASE BY AS MUCH AS 26 MINUTES OR 57 PERCENT UNDER THE ACCESS BUILD-OUT SCENARIO. THE 47 MINUTE TRIP COULD TAKE AS LONG AS 1 HOUR AND 12 MINUTES.

“... MORE THAN
430 CRASHES
PER YEAR ...”

FIGURE 2-4. EXISTING AND POTENTIAL NEW ACCESS POINTS ON SR 109 AT BUILD-OUT








3. ACCESS CLASSIFICATIONS AND RECOMMENDATIONS

SR 109 IS A MAJOR NORTH-SOUTH REGIONAL HIGHWAY IN MIDDLE TENNESSEE, THE ONLY NORTH-SOUTH ARTERIAL PROVIDING SURFACE TRANSPORTATION THROUGH SUMNER AND WILSON COUNTIES. AS SUCH, A GREATER DEGREE OF CONTROL OF TRAFFIC ENGINEERING DESIGN SHOULD BE EXERCISED TO MAINTAIN PUBLIC SAFETY AND THE FUNCTIONAL LEVEL OF TRAVEL. GIVEN THE TRAFFIC VOLUMES AND SPEEDS ON SR 109, LOWER QUALITY ENGINEERING AND ADDING ACCESS POINTS OF ANY TYPE WILL RESULT IN AN INCREASE IN CRASHES AND LOWER PERFORMANCE WHERE THIS OCCURS.

ACCESS MANAGEMENT REQUIRES COORDINATION BETWEEN LAND USE DECISIONS, THE ENTIRE STREET NETWORK, AND A FIRM REGULATORY APPROACH TO CONTROL DIRECT ACCESS ONTO ARTERIAL HIGHWAYS. THE PROPERTIES ABUTTING SR 109 REQUIRE REASONABLE ACCESS. BY THE USE OF LOCAL STREETS, COLLECTORS, INTEGRATED DEVELOPMENT SITES, CROSS-ACCESS EASEMENTS, AND INTERNAL SITE CIRCULATION, THE LOCATION OF ACCESS POINTS CAN BE WELL-SPACED, WELL-DESIGNED, AND THE INTERFERENCE WITH TRAVEL ON THE ARTERIAL MINIMIZED.

THE SR 109 ACCESS MANAGEMENT STUDY RECOMMENDS THE APPLICATION OF A FIVE LEVEL HIERARCHY OF ACCESS MANAGEMENT CLASSIFICATIONS. THESE RANGE FROM HIGHLY RESTRICTIVE (CLASS I) TO MORE PERMISSIVE (CLASS V). THE CLASSIFICATIONS ENCOMPASS VARIOUS COMPONENTS OF ROADWAY DESIGN AND OPERATION, INCLUDING MEDIAN, SIGNAL, AND ACCESS SPACING. THE FOLLOWING SECTION PROVIDES GENERAL DESCRIPTIONS FOR EACH CLASSIFICATION, AS WELL AS RECOMMENDED STANDARDS FOR ACCESS FREQUENCY, LOCATION, AND DESIGN. FOR CLASSES II-V, STANDARDS FOR ROADWAYS WITH AND WITHOUT MEDIANS ARE INCLUDED. TABLE 3-1 SUMMARIZES THE ACCESS CATEGORIES AND THEIR RESPECTIVE SPACING STANDARDS.

TABLE 3-1. ACCESS CLASSIFICATIONS AND SPACING STANDARDS

					
CLASS	MEDIAN TYPE	MEDIAN OPENINGS	SIGNAL SPACING*	STREET SPACING	DRIVEWAY SPACING
I	RESTRICTIVE	NONE	NONE	1 MILE (URBAN) 2 MILES (RURAL)	NONE
II	PAINTED	N/A	5,280	1,320	N/A
II-M	DIRECTIONAL	1,320	5,280	1,320	N/A
III	PAINTED	N/A	2,640	1,320	660
III-M	DIRECTIONAL	1,320	2,640	1,320	660
IV	PAINTED	N/A	2,640	660	660
IV-M	DIRECTIONAL	660	2,640	660	660
V	PAINTED	N/A	1,320	660	330
V-M	DIRECTIONAL	660	1,320	330	330

* Roundabouts may be used in any classification that allows a at-grade intersection. Roundabouts support more flexibility in traffic control spacing and result in fewer serious crashes.

3.1 Access Classifications

Class I – Freeway/Restricted Access

CLASS I ROADWAYS, WHICH ARE ESSENTIALLY “INTERSTATES” OR “FREEWAYS,” FEATURE THE HIGHEST OPERATING SPEEDS, OFTEN AT 55 MPH OR MORE. MOBILITY AND SAFETY ARE THE HIGHEST PRIORITIES. WHEN DESIGNED WELL, CLASS I ROADWAYS PROVIDE THE SHORTEST TRAVEL TIMES AND SAFEST TRAVEL. ACCESS IS COMPLETELY RESTRICTED TO GRADE-SEPARATED INTERCHANGES AND MEDIAN OPENINGS ARE RESTRICTED ONLY TO THOSE THAT ACCOMMODATE EMERGENCY VEHICLES. A SECONDARY STREET NETWORK IS NECESSARY, AS NO PUBLIC OR PRIVATE ACCESS IS ALLOWED ON THE ROADWAY.

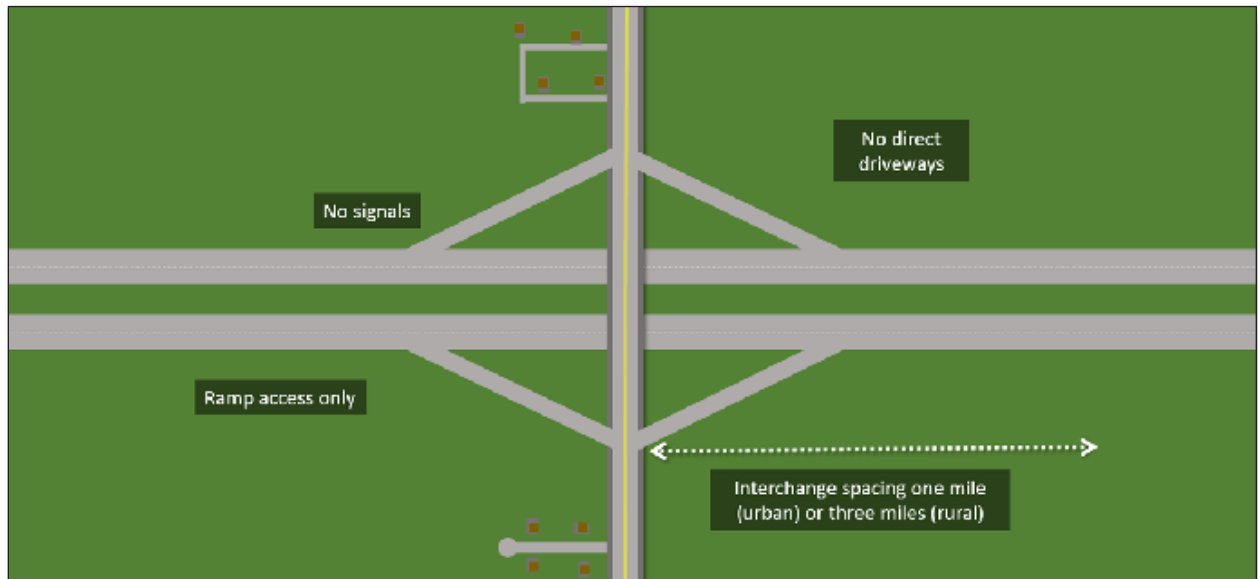
FIGURE 3-1. CLASS I EXAMPLE: BRILEY PARKWAY, NASHVILLE



FIGURE 3-2. CLASS I EXAMPLE: I-840



FIGURE 3-3. CLASS I DIAGRAM



Class II – Limited Access Arterial

CLASS II ROADWAYS ARE THE MOST RESTRICTIVE ROADWAYS THAT STILL FEATURE DIRECT ACCESS. MOBILITY AND SAFETY REMAIN THE HIGHEST PRIORITIES, AND THE ROADWAY FEATURES SPEEDS OF NO LOWER THAN 45 MPH. ACCESS IS ONLY GRANTED TO WELL-SPACED PUBLIC STREET INTERSECTIONS. NO PRIVATE DRIVEWAY CONNECTIONS ARE PERMITTED, ALTHOUGH TEMPORARY DRIVEWAYS MIGHT BE ALLOWED IN THE ABSENCE OF AN EFFECTIVE LOCAL STREET NETWORK. A SECONDARY STREET NETWORK IS NECESSARY TO SUPPORT THIS CLASSIFICATION. NON-TRAVERSABLE MEDIANS ARE HIGHLY RECOMMENDED, AND IF ADDED, THE CLASSIFICATION WOULD BECOME CLASS II-M.

FIGURE 3-4. CLASS II EXAMPLE: MACK HATCHER PARKWAY, FRANKLIN

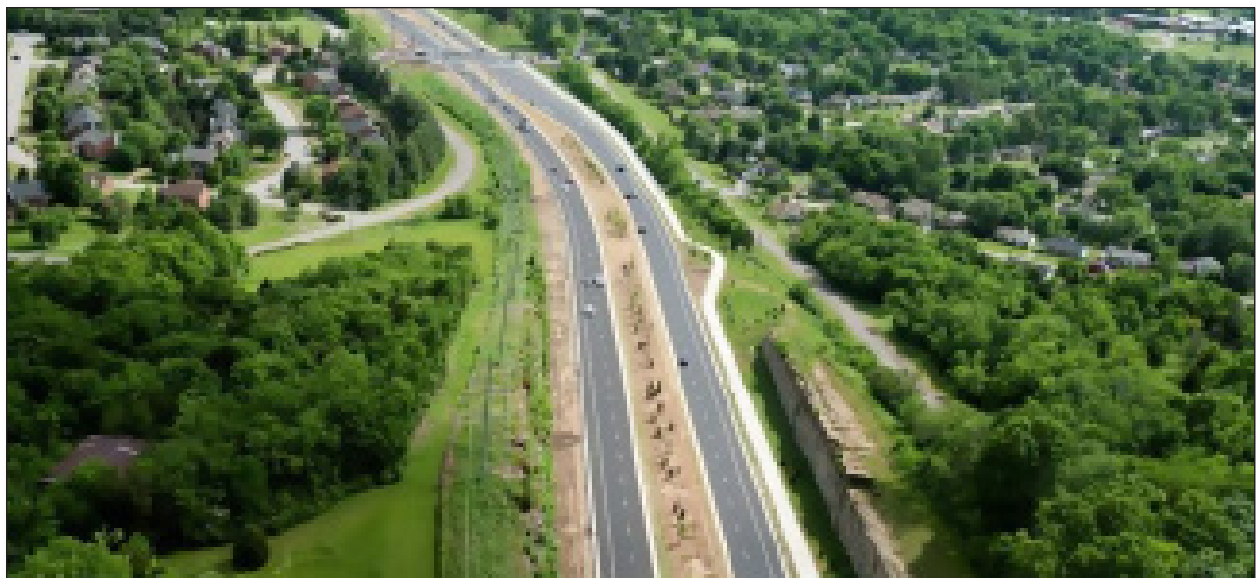


FIGURE 3-5. CLASS II EXAMPLE: SR 109 BYPASS, GALLATIN



FIGURE 3-6. CLASS II DIAGRAM WITHOUT MEDIAN

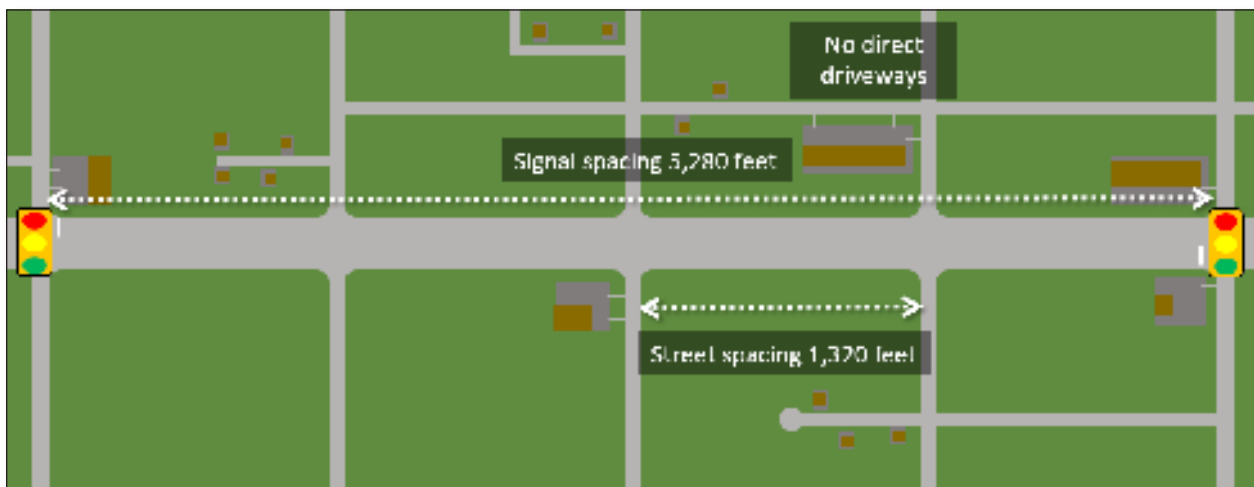
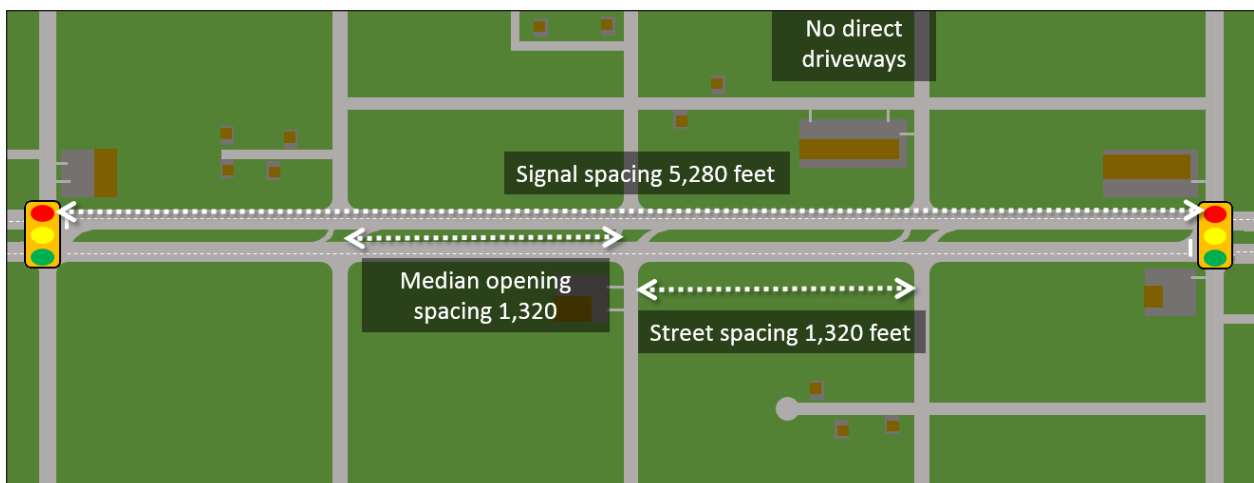


FIGURE 3-7. CLASS II DIAGRAM WITH MEDIAN



Class III – Suburban Transition

CLASS III ROADWAYS CAN BE USED WHEN TRANSITIONING INTO AREAS OF MORE DEVELOPMENT, SUCH AS SUBURBAN AREAS IF MORE ACCESS IS NECESSARY. MOBILITY REMAINS A HIGH PRIORITY, BUT ACCESS BECOMES INCREASINGLY IMPORTANT. THE ROADWAY STILL SUPPORTS A MODERATE LEVEL OF MOBILITY WITH SPEEDS OF AT LEAST 40 MPH. PRIVATE DRIVEWAYS ARE VERY LIMITED, BUT PERMITTED WHEN NECESSARY. TRAFFIC SIGNALS AND ACCESS POINTS ARE MORE COMMON. A SECONDARY STREET NETWORK IS NECESSARY TO SUPPORT THIS CLASSIFICATION. A NON-TRAVERSABLE MEDIAN IS RECOMMENDED TO IMPROVE SAFETY, ALTHOUGH REGULAR MEDIAN OPENINGS MAY BE REQUIRED TO ACCOMMODATE BOTH ACCESS POINTS AND U-TURNING VEHICLES. IF A NON-TRAVERSABLE MEDIAN IS INCLUDED, THE CLASSIFICATION WOULD BECOME CLASS III-M. HOWEVER, ALLOWING MORE ACCESS WILL INCREASE THE CRASH RATE, TRAVEL DELAYS, AND TRAVEL TIMES.

FIGURE 3-8. CLASS III-M EXAMPLE: OLD FORT PARKWAY, MURFREESBORO



FIGURE 3-9. CLASS III-M EXAMPLE: McEWEN DRIVE, FRANKLIN



FIGURE 3-10. CLASS III DIAGRAM WITHOUT MEDIAN



FIGURE 3-11. CLASS III DIAGRAM WITH MEDIAN



Class IV – Suburban

CLASS IV ROADWAYS TYPICALLY ACCOMPANY SUBURBAN DEVELOPMENT PATTERNS. THIS CLASS SEEKS TO ACHIEVE A BALANCE BETWEEN MOBILITY AND LAND USE ACCESS, AND WHILE PRIVATE DRIVEWAYS ARE STILL UNDESIRABLE, IT FEATURES MORE PERMISSIVE ACCESS ALLOWANCES. MAXIMUM SPEEDS AVERAGE 35 MPH AND DRIVEWAYS SHOULD BE WELL-SPACED. THIS CLASS WILL HAVE HIGHER CRASH RATES AND MORE TRAVEL DELAY THAN THE PREVIOUS THREE CLASSES. A SECONDARY STREET NETWORK IS DESIRABLE, AND WHILE A NON-TRAVERSABLE MEDIAN IS STILL RECOMMENDED TO IMPROVE SAFETY (CLASS IV-M), SOME AREAS MAY REQUIRE DIFFERENT MEDIAN DESIGNS TO ACCOMMODATE MORE FREQUENT OPENINGS.

FIGURE 3-12. CLASS IV EXAMPLE: MOORE'S LANE, BRENTWOOD



FIGURE 3-13. CLASS IV-M EXAMPLE: SAM RIDLEY PARKWAY, SMYRNA

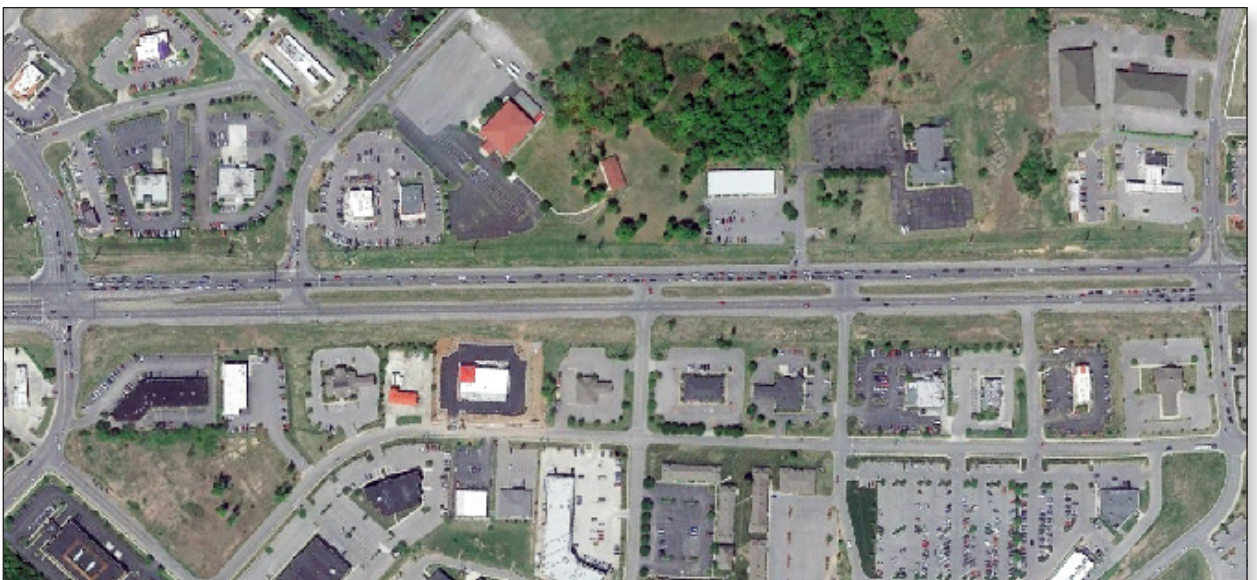


FIGURE 3-14. CLASS IV DIAGRAM WITHOUT MEDIAN

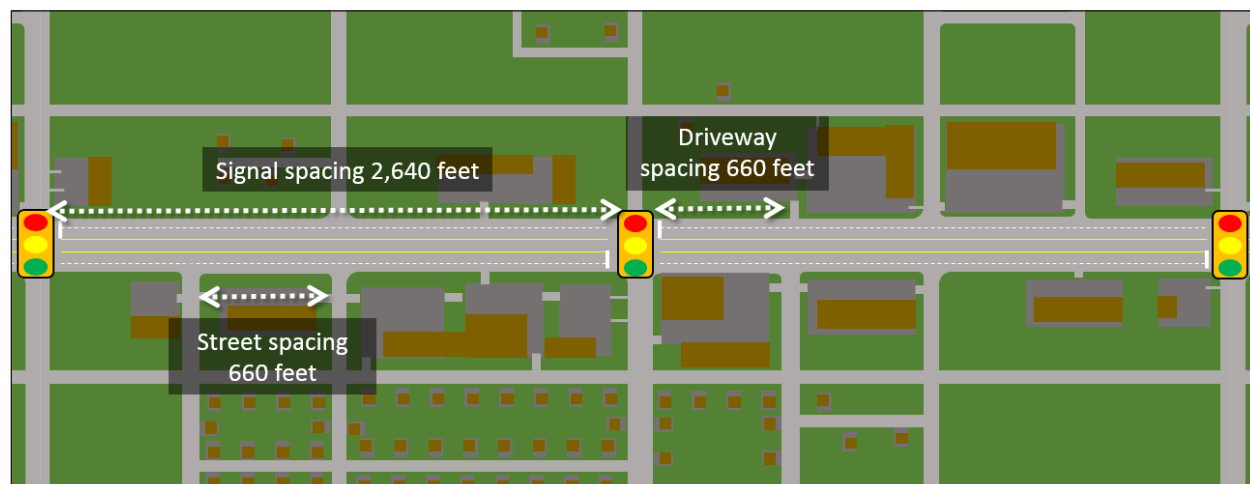
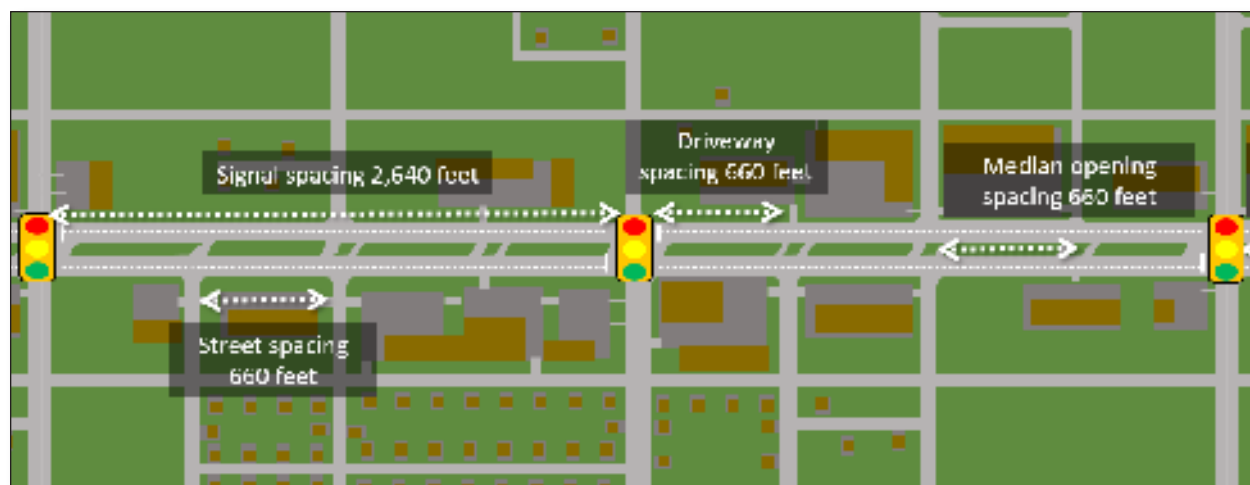


FIGURE 3-15. CLASS IV DIAGRAM WITH MEDIAN



Class V – Urban

CLASS V ROADWAYS ARE USED IN URBAN AREAS WITH HIGHER DENSITY COMMERCIAL AND/OR RESIDENTIAL DEVELOPMENT. MOBILITY IS COMPROMISED FOR THE ACCOMMODATION OF ABUTTING ACCESS NEEDS, AND SPEEDS ARE TYPICALLY LESS THAN 35 MPH. THIS CLASS FEATURES THE HIGHEST CRASH RATES OF ANY OF THE FIVE CLASSES. GOOD DESIGN CAN MITIGATE SAFETY IMPACTS TO SOME DEGREE. DRIVEWAYS SHOULD STILL BE WELL-SPACED, AND NON-TRAVERSABLE MEDIANS SHOULD BE IMPLEMENTED WHERE PRACTICAL (CLASS V-M). THIS CLASS SHOULD BE USED SPARINGLY AND PRIMARILY IN AREAS WITH HIGH CONCENTRATIONS OF EXISTING DEVELOPMENT AND ITS ASSOCIATED ACCESS POINTS WHERE USING A HIGHER CLASS IS NOT FEASIBLE.

FIGURE 3-16. CLASS V EXAMPLE: GALLATIN PIKE, NASHVILLE

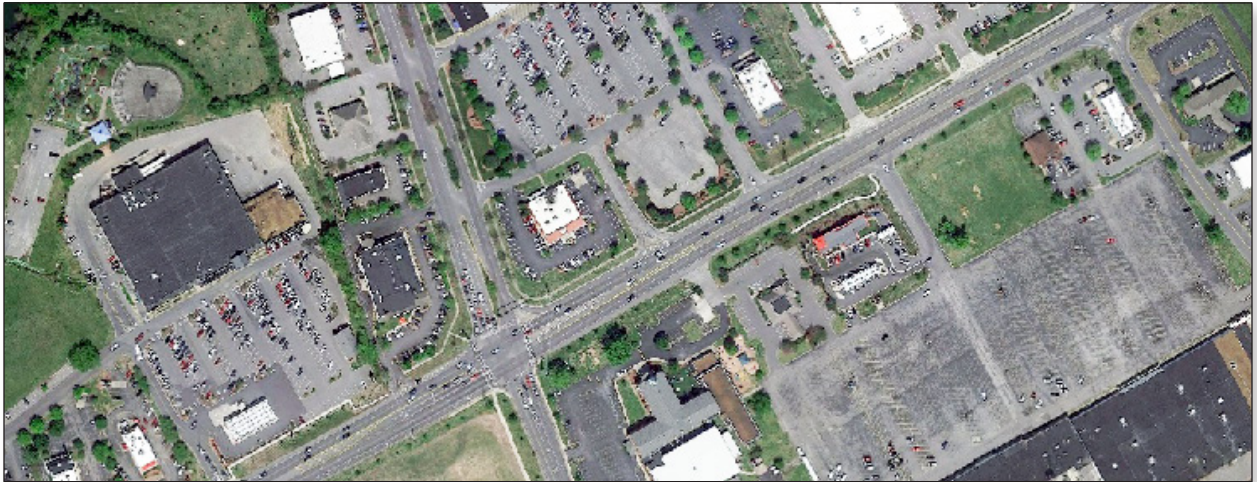


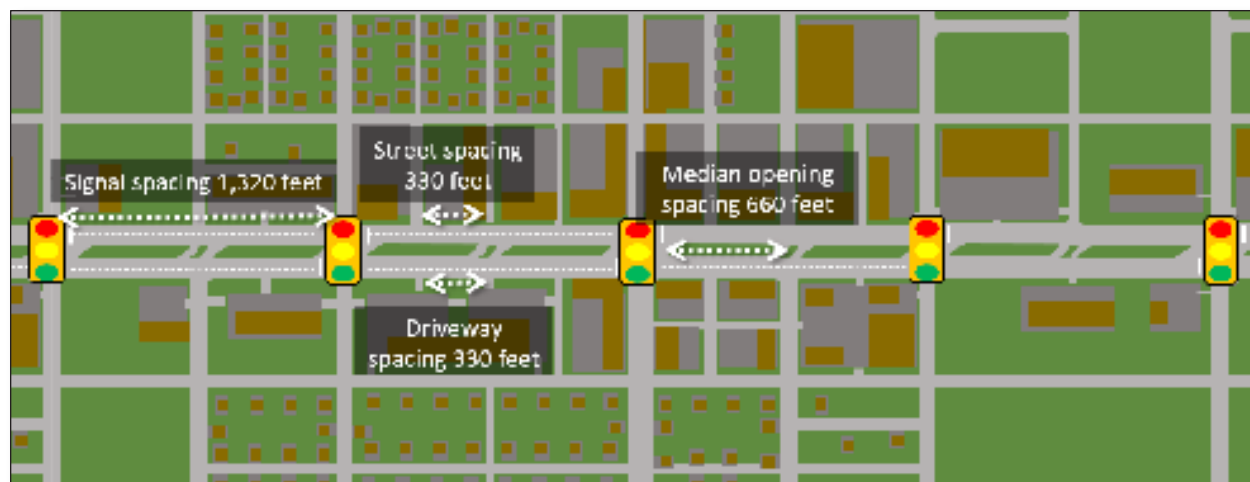
FIGURE 3-17. CLASS V EXAMPLE: JOHNNY CASH PARKWAY, HENDERSONVILLE



FIGURE 3-18. CLASS V DIAGRAM WITHOUT MEDIAN



FIGURE 3-19. CLASS V DIAGRAM WITH MEDIAN

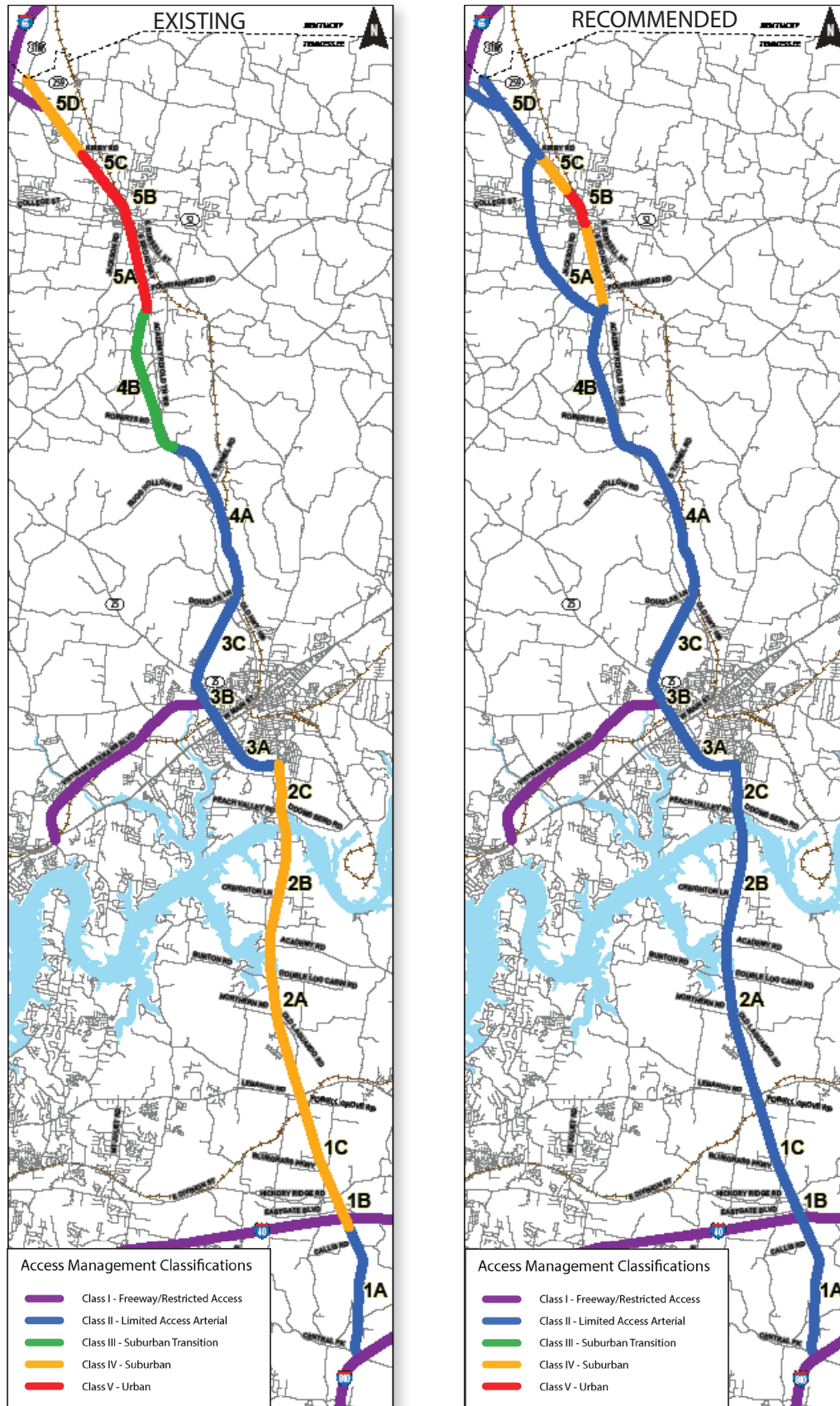


3.2 Recommended Access Classifications for SR 109

SR 109 TODAY DOES NOT OPERATE UNDER A UNIFIED VISION AT THE LOCAL, REGIONAL, OR STATEWIDE LEVELS. ACCESS DECISIONS ARE MADE PIECEMEAL WITH NO ASSESSMENT OF CUMULATIVE EFFECTS ON CORRIDOR SAFETY OR EFFICIENCY. WITH KEY CONNECTIONS TO THE REGIONAL AND INTERSTATE HIGHWAY SYSTEM AT I-840, I-40, SR 386, AND I-65 – ALL CHARACTERISTIC OF CLASS I: FREEWAY/RESTRICTED ACCESS HIGHWAYS – SR 109 COULD BE DESIGNED, OPERATED, AND MANAGED TO PROVIDE SEAMLESS TRAVEL TO, FROM, AND THROUGH MIDDLE TENNESSEE. THE FOLLOWING RECOMMENDED ACCESS CLASSIFICATIONS ARE ONE IMPORTANT STEP TO ACHIEVING THE UNIFIED CORRIDOR VISION AND ASSOCIATED GOALS IDENTIFIED IN THIS STUDY.

FIGURE 3-20 ILLUSTRATES THE ROUTE IN ITS CURRENT CONDITION AND APPLIES ONE OF THE FIVE ACCESS CATEGORIES DISCUSSED PREVIOUSLY TO THOSE CURRENT CONDITIONS. AGAIN, TODAY, ACCESS ON SR 109 JUMPS RANDOMLY FROM ONE CLASSIFICATION TO ANOTHER, OFTEN LEAPFROGGING THE NEXT, MOST LOGICAL CLASS. FOR EXAMPLE, THE LONG SEGMENT OF SR 109 BETWEEN I-40 AND THE GALLATIN BYPASS EFFECTIVELY DROPS FROM A CLASS II: LIMITED ACCESS ARTERIAL HIGHWAY TO A CLASS IV: SUBURBAN HIGHWAY AND THEN ABRUPTLY RETURNS TO A CLASS II HIGHWAY. IMPLEMENTING THE RECOMMENDED SYSTEM AND STANDARDS WILL ELIMINATE THOSE TYPES OF INCONSISTENCIES, AND PRESERVE AND ENHANCE THE LONG-TERM VALUE OF SR 109 FOR BOTH THE STATE AND LOCAL COMMUNITIES. RECONSTRUCTION AND REALIGNMENT PROJECTS SCHEDULED FOR SR 109 SHOULD BE DESIGNED TO ACHIEVE THE RECOMMENDED ACCESS CLASSIFICATION AS BEST POSSIBLE, AND ALL DECISIONS WILL NEED TO REMAIN SENSITIVE TO THE CONTEXT IN WHICH THEY ARE MADE SO THAT THEY ARE RESPECTFUL TO THE WISHES OF THE LOCAL COMMUNITY.

FIGURE 3-20. SR 109 ACCESS MANAGEMENT – EXISTING AND RECOMMENDED



Interchange Areas

INTERSTATE INTERCHANGE AREAS PRESENT UNIQUE OPPORTUNITIES AND CHALLENGES FOR STATE DEPARTMENTS OF TRANSPORTATION, REGIONAL PLANNING AGENCIES, AND LOCAL JURISDICTIONS. PROVIDING ACCESS TO EFFICIENT INTERSTATE AND INTERREGIONAL TRAVEL, INTERCHANGES ALSO SERVE AS CRITICAL LINKS TO STATE HIGHWAY AND LOCAL STREET NETWORKS THAT FUEL ECONOMIC DEVELOPMENT. OF COURSE, IF DEVELOPMENT UNFOLDS IN AN UNPLANNED AND UNCOORDINATED MANNER WITHIN AN INTERCHANGE AREA, THEN THE PERFORMANCE OF THE INTERCHANGE DETERIORATES OVER TIME RESULTING IN A SERIES OF FAMILIAR CHALLENGES:

- INCREASED CONGESTION – INCLUDING ON/OFF INTERSTATE RAMPS, CONNECTING ROADWAYS, AND INTERSECTIONS;
- INCREASED CRASHES;
- INCREASED COSTS TO ADDRESS FUTURE SAFETY, CAPACITY, AND OPERATIONAL ISSUES; AND
- NEGATIVE IMPACTS ON THE ECONOMIC COMPETITIVENESS OF INTERCHANGE AREAS, LOCAL INDUSTRY AND BUSINESSES, AND NEARBY DOWNTOWNS.

IT'S WORTH NOTING THAT IN AREAS SUCH AS INTERCHANGES, ACCESS MANAGEMENT SHOULD NOT BE SEEN AS A DETERRENT TO A COMMUNITY'S DESIRED DEVELOPMENT. THERE ARE EXAMPLES ACROSS THE STATE AND ACROSS THE COUNTRY OF ROADWAYS THAT HAVE PRACTICED RESTRAINT IN TERMS OF ACCESS POINTS THAT ALSO SUPPORT HEAVY COMMERCIAL AND RESIDENTIAL DEVELOPMENT. THE KEY TO A HIGHLY EFFICIENT MAIN ARTERIAL IN A HIGHLY DEVELOPED AREA IS TO HAVE LIMITED ACCESS POINTS ON THE ARTERIAL AND A STRONG NETWORK OF SMALLER STREETS AND CONNECTIONS THAT FACILITATE INTERNAL CIRCULATION OF TRAFFIC OFF OF THE ARTERIAL.

WHILE IT IS BEYOND THE SCOPE OF THIS STUDY, DETAILED INTERCHANGE ACCESS MANAGEMENT PLANS SHOULD BE DEVELOPED FOR THE SR 109 INTERCHANGE AREAS AT I-65, I-40, AND I-840. PREPARED AND ADOPTED JOINTLY BY THE STATE DEPARTMENT OF TRANSPORTATION AND LOCAL GOVERNMENT, A TYPICAL INTERCHANGE ACCESS MANAGEMENT PLAN:

- IDENTIFIES THE BOUNDARIES OF THE INTERCHANGE MANAGEMENT AREA;
- DESCRIBES EXISTING TRANSPORTATION AND LAND USE CONDITIONS;
- DEFINES LONG-TERM STATE AND LOCAL TRANSPORTATION AND LAND USE GOALS, OBJECTIVES, AND PERFORMANCE MEASURES FOR THE INTERCHANGE AREA;
- ENSURES THAT LOCAL LAND USE PLANS, ZONING, SUBDIVISION REGULATIONS, STREET NETWORK PLANS, AND ACCESS MANAGEMENT POLICIES AND STANDARDS ARE CONSISTENT WITH THE INTENDED FUNCTION OF THE INTERCHANGE;
- DETERMINES THE LOCATION OF ALL FULL MOVEMENT INTERSECTIONS;
- DETERMINES HOW EACH PROPERTY OWNER WILL HAVE ACCESS CIRCULATION;
- MINIMIZES ENVIRONMENTAL IMPACTS; AND
- GUIDES FUTURE TRANSPORTATION AND LAND USE DECISIONS.

“... AN
INTERCHANGE
ACCESS
MANAGEMENT
PLAN PROVIDES
GREATER
DETAIL THAN
AN ACCESS
CLASSIFICATION
SYSTEM ...

FINALLY, BECAUSE AN INTERCHANGE ACCESS MANAGEMENT PLAN PROVIDES GREATER DETAIL THAN AN ACCESS CLASSIFICATION SYSTEM, THE PLAN'S POLICIES, REGULATIONS, AND STANDARDS WILL SUPERSEDE THE SPACING STANDARDS IN THE UNDERLYING ACCESS CLASSIFICATION.

North Gateway: New I-65 Interchange in Portland

ONE OF THE MOST SIGNIFICANT PLANNED IMPROVEMENTS IN THE SR 109 CORRIDOR IS THE NEW I-65 INTERCHANGE IMMEDIATELY NORTH OF PORTLAND NEAR LAKE SPRINGS ROAD. IMPORTANTLY, THE NEW INTERCHANGE WILL CONNECT TO SR 109 AND ULTIMATELY THE PLANNED PORTLAND BYPASS, IMPROVING REGIONAL CIRCULATION AND CREATING LOCAL DEVELOPMENT OPPORTUNITIES. IN ANTICIPATION OF THE PLANNED IMPROVEMENTS, THE CITY OF PORTLAND IS CURRENTLY PREPARING A CORRIDOR PLAN, THE NORTH GATEWAY CORRIDOR PLANNING STUDY, TO GUIDE DEVELOPMENT IN THE NEW INTERCHANGE AREA AND ALONG SR 109.

ENSURING THAT ACCESS MANAGEMENT STANDARDS RECOMMENDED IN THIS STUDY ARE CONSIDERED FOR FUTURE DEVELOPMENT IS CRITICAL TO PRESERVE LONG-TERM TRAFFIC CAPACITY, TRAVEL TIMES, AND SAFETY. ADDITIONALLY, AN INTERCHANGE ACCESS MANAGEMENT PLAN THAT ESTABLISHES SPECIFIC INTERSECTION LOCATIONS AND PROPERTY ACCESS CIRCULATION SHOULD BE COMPLETED IN CONJUNCTION WITH THE NORTH GATEWAY STUDY. THE ENORMOUS ECONOMIC IMPACT THAT THE INTERCHANGE CAN PROVIDE THE REGION AND THE CITY WILL BE LIMITED IF IT IS UNDERMINED BY TRAFFIC CONFLICTS, DELAYS, AND CONGESTION CAUSED BY FREQUENT ACCESS POINTS ON SR 109.



SECTION 10-H-E-1619-2.0.0.
1.1.1. 2005-2004.
1.1.1. 2005-2004 S.H. 16.1.1. 4.1.1.
1.1.1. 2005-2004

4. RECOMMENDED ACCESS MANAGEMENT PRACTICE IMPROVEMENTS

4.1 Roadway Design and Driveway Management

BY IMPROVING ROADWAY DESIGN AND THE MANAGEMENT OF ACCESS CONNECTIONS, INCLUDING PUBLIC INTERSECTIONS AND PRIVATE DRIVEWAYS, THE PERFORMANCE OF THE ARTERIAL HIGHWAY WILL RESPOND WITH IMPROVED TRAVEL TIMES, FEWER DELAYS, AND LOWER CRASH RATES. THE BEST PRACTICES DISCUSSED IN THIS SECTION ARE JUST SOME OF THE TOOLS THAT CAN BE USED TO AUGMENT THE SPACING STANDARDS IDENTIFIED IN THE ACCESS CLASSIFICATIONS, ESPECIALLY IN THE SHORT-TERM. MORE DETAILED DESCRIPTIONS OF THE BEST PRACTICES CAN BE FOUND IN THE SR 109 STUDY'S TECHNICAL MEMORANDUM: ACCESS MANAGEMENT RESOURCE KIT. TABLE 4-1 SUMMARIZES THE BENEFITS OF MANY ACCESS MANAGEMENT TOOLS.











AN IMPORTANT CONSIDERATION IS THE QUALITY OF ACCESS DESIGN. ENGINEERING MANUALS USUALLY PRESENT BOTH DESIRABLE AND MINIMUMS TO THE DESIGNER. IN ACCESS MANAGEMENT, MINIMUM DESIGN CRITERIA SHOULD BE AVOIDED UNLESS THERE IS A CRITICAL NECESSITY FOR THE USE OF MINIMUMS AS DETERMINED BY AN ANALYSIS OF DESIGN, OPERATION, AND SAFETY TRADEOFFS. THE USE OF MINIMUM DESIGN MEANS PROVIDING ONLY A MINIMUM LEVEL OF ACCEPTABLE CAPACITY, A MINIMUM LEVEL OF ACCEPTABLE SAFETY, AND A MINIMUM LEVEL OF ADVERSE IMPACT MITIGATION. THE MINIMUM METHOD LEAVES VERY LITTLE ROOM FOR DRIVER ERROR, AND LITTLE ROOM FOR TRAFFIC GROWTH AND UNANTICIPATED CHANGES.

Driveways

THERE ARE SEVERAL LOCATIONS WHERE INGRESS/EGRESS IS NOT CLEARLY DEFINED ALONG SR 109, RESULTING IN AN EXTREMELY WIDE DRIVEWAY THAT DOES NOT IDENTIFY THE APPROPRIATE LOCATIONS FOR VEHICULAR INGRESS AND EGRESS. SIMILARLY, THERE ARE SEVERAL LOCATIONS WHERE INGRESS/EGRESS IS CLEARLY DEFINED, BUT MULTIPLE DRIVEWAYS ARE LOCATED IN CLOSE PROXIMITY TO EACH OTHER (FIGURE 4-1). BEST PRACTICES TO ADDRESS THESE ISSUES INCLUDE:

- **Physical Barriers to Access:** WHERE THERE ARE NO BARRIER CURBS ON A PROPERTY, AS SOMETIME OCCURS IN RURAL AND SUBURBAN AREAS, AN ON-SITE BARRIER DIRECTS SITE TRAFFIC TOWARDS THE AUTHORIZED ACCESS OPENING. THIS MAY BE A BARRIER OF ALMOST ANY TYPE THAT HELPS DIRECT THE DRIVER TO DESIGNATED ACCESS POINTS AND PREVENT DRIVING OVER THE ROADWAY CURB FROM THE BACKSIDE. LOW HEIGHT LANDSCAPING MAY BE USED. THIS TOOL IS RECOMMENDED ON ANY PROPERTY WHERE THERE IS VERY LITTLE OR NO PHYSICAL CONSTRAINTS TO PREVENT VEHICLES FROM DRIVING ONTO THE ROAD AT UNAUTHORIZED LOCATIONS. TERMS OF A DRIVEWAY PERMIT SHOULD RESTRICT ACCESS TO

TABLE 4-1. SAFETY IMPACTS OF ACCESS MANAGEMENT TREATMENTS

TREATMENT		EFFECTS
	ADD CONTINUOUS TWO-WAY LEFT-TURN LANES (TWLTL)	<ul style="list-style-type: none"> • 35% reduction in total crashes • 30% decrease in delay • 30% increase in capacity
	ADD NON-TRAVERSABLE MEDIAN	<ul style="list-style-type: none"> • >55% reduction in total crashes • 30% decrease in delay • 30% increase in capacity
	REPLACE TWLTL WITH A NON-TRAVERSABLE MEDIAN	<ul style="list-style-type: none"> • 15%-57% reduction in crashes on 4-lane roads • 25%-50% reduction in crashes on 6-lane roads
	ADD A LEFT-TURN BAY	<ul style="list-style-type: none"> • 25% to 50% reduction in crashes on 4-lane roads • Up to 75% reduction in total crashes at unsignalized access • 25% increase in capacity
	TYPE OF LEFT-TURN IMPROVEMENT A) PAINTED B) SEPARATOR OR RAISED DIVIDER	<ul style="list-style-type: none"> • 32% reduction in total crashes • 67% reduction in total crashes
	ADD RIGHT-TURN BAY	<ul style="list-style-type: none"> • 20% reduction in total crashes • Limit right-turn interference with platooned flow, increased capacity
	INCREASE DRIVEWAY SPEED FROM 5 MPH TO 10 MPH	<ul style="list-style-type: none"> • 50% reduction in delay per maneuver, less exposure time to following vehicles
	VISUAL CUE AT DRIVEWAYS, DRIVEWAY ILLUMINATION	<ul style="list-style-type: none"> • 42% reduction in crashes
	PROHIBITION OF ON-STREET PARKING	<ul style="list-style-type: none"> • 30% increase in traffic flow • 20%-40% reduction in crashes
	LONG SIGNAL SPACING WITH LIMITED ACCESS	<ul style="list-style-type: none"> • 42% reduction in total vehicle-hour of travel • 59% reduction in delay • 57,500 gallons of fuel saved per mile per year

Source: "Access Management, Location and Design," National Highway Institute (2000)

DESIGNATED LOCATIONS AND DIRECT THE PERMITTEE FROM ALLOWING ON-SITE CONDITIONS TO EXIST THAT MIGHT LEAD A DRIVER FROM USING AN UNAUTHORIZED LOCATION.

- **Greater Driveway Spacing:** CLOSELY SPACED DRIVEWAYS, ESPECIALLY WHEN THEY ARE BUSY COMMERCIAL DRIVEWAYS, CREATE OVERLAPPING CONFLICT AREAS,

FIGURE 4-1. SR 109 DRIVEWAY PROXIMITY



INTERFERE WITH INTERSECTION OPERATIONS, INCREASE THE DIFFICULTY FOR THE MOTORIST TO MANAGE CONFLICTS, AND LIMIT SIGHT DISTANCE. AS SPACING BETWEEN DRIVEWAYS INCREASES, CONFLICT FREQUENCY IS REDUCED AND VISIBILITY IS INCREASED.

- **Driveway Consolidation:** THIS TECHNIQUE IS INTENDED TO COMBINE DRIVEWAYS TO REDUCE THE TOTAL NUMBER AND INCREASE SPACING TO REMAINING DRIVEWAYS. THE DRIVEWAYS OF SEVERAL PROPERTIES CAN ALSO BE COMBINED AS JOINT OR SHARED DRIVEWAYS IF THERE IS SUFFICIENT INTERNAL CIRCULATION BETWEEN PROPERTIES. DRIVEWAY CONSOLIDATION MAY BE REQUIRED TO CONFORM TO ADOPTED STANDARDS IF A PROPERTY CHANGES USE, OR IT MAY BE ACHIEVED VOLUNTARILY BY AN EXISTING PROPERTY. VOLUNTARY CONSOLIDATION TYPICALLY REQUIRES SOME TYPE OF INCENTIVE.
- **Cross Access:** THIS TECHNIQUE CONNECTS TWO ADJACENT PARCELS BY CONSTRUCTING A SMALL TWO-WAY ROAD OR DRIVEWAY BETWEEN THE PROPERTIES. SIMILAR TO SHARED ACCESS, IT MAY NOT REQUIRE ANY FORMAL AGREEMENTS AND SIMPLY RELY ON A PHYSICAL OPENING SO VEHICLES CAN MORE EASILY CIRCULATE. IT IS OFTEN USED IN RETROFIT SITUATIONS TO AVOID AN ADDITIONAL DIRECT CONNECTION TO THE MAIN ROADWAY AND TO IMPROVE CIRCULATION BETWEEN PARCELS. IT CAN ALSO BE COOPERATIVELY USED TO SHARE PARKING ESPECIALLY WHEN ONE BUSINESS HAS A PEAK PARKING HOUR OFFSET FROM ANOTHER BUSINESS SUCH AS AN OFFICE AND A MOVIE THEATRE.
- **Parallel Service Road:** A PARALLEL SERVICE ROAD NOT IMMEDIATELY ADJACENT TO THE MAIN ROAD, BUT RATHER BEHIND THE FIRST ROW OF PARCELS (FIGURE 4-2), CAN PROVIDE ACCESS TO DEVELOPMENT ON

BOTH SIDES OF THE ROAD AND IS MORE COST EFFICIENT THAN TRADITIONAL FRONTAGE ROADS, WHICH ARE INSTALLED WHEN A MAJOR ROADWAY SUCH AS A FREEWAY OR EXPRESSWAY CUT THROUGH THE EXISTING PATTERN OF LOCAL STREETS. WHEN A ROAD SYSTEM HIERARCHY IS CAREFULLY PLANNED, INCLUDING FREEWAY ALIGNMENTS, THE NEED FOR SERVICE ROADS SHOULD BE ELIMINATED. LOCAL ON-SITE CIRCULATION AND THE LOCAL STREET NETWORK SHOULD BE PLANNED TO PROVIDE SUFFICIENT CIRCULATION WITHOUT THE NEED FOR SERVICE ROADS.

Medians

INSTALLING NON-TRAVERSABLE MEDIANS CAN BE CONTROVERSIAL, BUT THEY DO REDUCE CRASHES. AS REPORTED IN THE 2014 TRANSPORTATION RESEARCH BOARD (TRB) ACCESS MANAGEMENT MANUAL, THE AVERAGE CRASH RATE ON ROADWAYS WITH A NON-TRAVERSABLE MEDIAN IS ABOUT 30 PERCENT LESS THAN A PAINTED MEDIAN AND A TWO-WAY LEFT-TURN LANE (TWLTL) DESIGN, AND 55 PERCENT LESS COMPARED TO NO MEDIAN AT ALL. TOOLS INCLUDE:

- **Non-Traversable Medians:** EACH ACCESS ONTO A PUBLIC ROAD CREATES SOME LEVEL OF CONFLICT AND PUBLIC HAZARD ON THE PUBLIC FACILITY. THE POTENTIAL FOR A CRASH INCREASES SIGNIFICANTLY IF THE ACCESS CONNECTION ALLOWS LEFT TURNS. NON-TRAVERSABLE MEDIANS SHOULD BE COMMON ON ARTERIALS TO MAINTAIN DESIRABLE MOBILITY AND SAFETY PERFORMANCE. FULL MOVEMENT OPENINGS WITHIN A MEDIAN SHOULD BE DETERMINED BY THE INTERSECTION SPACING REQUIREMENTS OF THE ASSIGNED ACCESS CATEGORY OR OTHER ADOPTED POLICIES. IN THE ABSENCE OF FULL TURN MOVEMENTS, IT WILL BE

FIGURE 4-2. CROSS ACCESS AND REAR ACCESS ROADS



NECESSARY TO CONSIDER ALTERNATIVE ACCESS FOR AFFECTED PROPERTIES, WHICH COULD INCLUDE U-TURNS, PARALLEL STREETS, AND CROSS-ACCESS.

- **Directional Median Opening:** A DIRECTIONAL MEDIAN OPENING IS AN ALTERNATIVE TO FULL CLOSURE. IT RESTRICTS LEFT TURNS FROM ENTERING THE ROADWAY WHILE STILL ALLOWING U-TURNS AND LEFT-TURNS FROM THE ROADWAY INTO THE ACCESS CONNECTION. A DIRECTIONAL OPENING IN THE MEDIAN CAN BE IMPLEMENTED WHEN REMOVING A TRAFFIC SIGNAL OR UPGRADING A ROADWAY TO A HIGHER FUNCTIONAL CLASSIFICATION DUE TO TRAFFIC GROWTH. IT MAY ALSO BE NECESSARY TO LIMIT CERTAIN TRAFFIC TURNING MOVEMENTS WHERE IT IS NO LONGER DESIRABLE OR NECESSARY OR DUE TO AN IDENTIFIED CRASH HISTORY INVOLVING LEFT TURN MOVEMENTS.
- **Channelizing Island:** A CHANNELIZING ISLAND IS A RAISED ISLAND IN THE ACCESS OPENING INTENDED TO LIMIT TURNING MOVEMENTS. THIS DESIGN CAN BE USED AN ALTERNATIVE TO INSTALLING A NON-TRAVERSABLE MEDIAN IN THE CENTER OF THE ROADWAY. WHEN IT IS NOT DESIRABLE OR FEASIBLE TO INSTALL A ROADWAY MEDIAN, A CHANNELIZING ISLAND ALONG WITH SIGNAGE PROVIDES DIRECTIONAL GUIDANCE TO MOTORISTS. THE USE OF AN ISLAND CAN BE TEMPORARY PENDING THE INSTALLATION OF A MEDIAN AS ROADWAY TRAFFIC INCREASES.

Turn Lanes

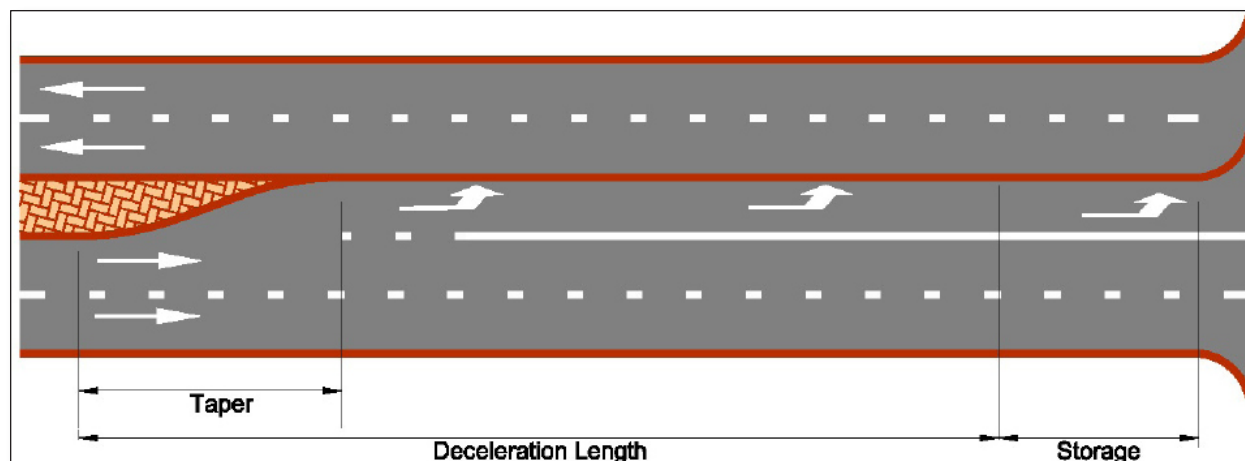
A KEY COMPONENT IN THE CRASH HISTORY ON THE TWO-LANE SEGMENTS OF SR 109 HAS BEEN THE LACK OF LEFT AND RIGHT-TURN LANES. SEVERE REAR-END CRASHES CAN OCCUR WHILE A VEHICLE IS STOPPED IN THE 55 MPH TRAVEL LANE WHILE WAITING FOR A GAP IN ON-COMING TRAFFIC. IT IS ONLY SOMEWHAT LESS DANGEROUS TO SLOW TO 10 MPH IN THE 55 MPH TRAVEL LANE TO TURN RIGHT INTO A LOCAL DRIVEWAY. MOST PUBLIC INTERSECTIONS ON THE SR 109 BYPASS HAVE SHORT LEFT-TURN LANES. HOWEVER, THERE ARE MANY U-TURN MEDIAN OPENINGS WITHOUT A LEFT-TURN LANE. THE GALLATIN BYPASS LACKS RIGHT-TURN LANES AT ALMOST EVERY ACCESS POINT DESPITE FREQUENT RIGHT TURNS. WHEN TURN LANES ARE MISSING OR SHORT, THERE IS A SIGNIFICANT SPEED DIFFERENTIAL IN THE THROUGH LANES BETWEEN THE VEHICLES SLOWING TO A STOP OR VERY LOW SPEEDS, WHILE THE THROUGH TRAFFIC IS TRAVELING AT 55 MPH.

RECOMMENDED DESIGN PRACTICE INCLUDES:

- **Left-Turn Deceleration Lane for Median Opening:** REQUIREMENTS FOR TURN LANES VARY DEPENDING ON THE ACCESS CATEGORY AND TRAFFIC VOLUMES AND SHOULD BE INCLUDED IN AGENCY REGULATIONS. RESEARCH PUBLISHED IN 2013 RECOMMENDS THAT MOST HIGHWAYS HAVE LEFT-TURN LANES WHEN THE LEFT-IN TURNING VOLUME EXCEEDS FIVE VEHICLES IN THE PEAK HOUR. THE DESIGN OF THE LEFT-TURN LANE SHOULD INCLUDE SUFFICIENT LENGTH FOR QUEUE STORAGE AND DECELERATION MANEUVERS SO THAT THE SPEED DIFFERENTIAL OF A CAR SLOWING TO ENTER THE LEFT-TURN LANE DOES NOT EXCEED 10 MPH RELATIVE TO THROUGH VEHICLES FOLLOWING (FIGURE 4-3).
- **Isolated Left-Turn Bay:** IN ISOLATED AREAS, USUALLY RURAL HIGHWAYS, A MEDIAN MAY NOT EXIST. THIS TECHNIQUE CALLS FOR INSTALLING AN ISOLATED LEFT-TURN BAY TO PROVIDE IMPROVED SAFETY ON THE

“...THE
GALLATIN BYPASS
LACKS RIGHT
TURN LANES
AT ALMOST
EVERY ACCESS
POINT . . .

FIGURE 4-3. LEFT-TURN DECELERATION LANE



“... UNIFORM TRAFFIC SIGNAL SPACING, AND ALTERNATIVE INTERSECTION DESIGNS SUCH AS ROUNDABOUTS, WILL BE CRITICAL TO BOTH OPERATIONAL AND SAFETY PERFORMANCE.

ROADWAY. THIS IS NORMALLY USED IN RETROFIT SITUATIONS FOR AN EXISTING ACCESS POINT THAT NEEDS A LEFT-TURN LANE DUE TO INCREASING TRAFFIC CONDITIONS OR POOR SAFETY HISTORY. IT MAY BE NECESSARY TO RELOCATE THE ACCESS POINT IN ADDITION TO ADDING THE LEFT-TURN BAY. IT MAY ALSO BE NECESSARY TO RECONSTRUCT THE ACCESS CONNECTION.

- **Right-Turn Lane:** A RIGHT-TURN LANE IS AN AUXILIARY LANE TO REMOVE TURNING TRAFFIC FROM THE THROUGH LANE WHILE SLOWING DOWN TO MAKE A RIGHT TURN. A RIGHT-TURN LANE SHOULD BE REQUIRED BY PERMIT REGULATIONS UNDER CERTAIN VOLUME AND TRAFFIC CONDITIONS.
- **Existing Turn Lane Improvement:** THIS IMPROVEMENT IS NORMALLY A RETROFIT ACTION TO FIX AN EXISTING TURN LANE THAT IS TOO SHORT, CAUSING A SPEED DIFFERENTIAL GREATER THAN 10 MPH WITH THE ADJACENT THROUGH LANE. THE LENGTHENING OF THE TURN LANE SHOULD BE CONSIDERED TO IMPROVE TRAFFIC OPERATIONS AND SAFETY WHERE TURNING TRAFFIC IS INTERFERING WITH THROUGH TRAFFIC AT THE DEPARTURE POINT NEAR THE TAPER.

Traffic Signal Timing and Operations

PUBLIC FULL MOVEMENT INTERSECTIONS, AND ESPECIALLY THOSE WITH TRAFFIC SIGNALS, ARE USUALLY THE LOCATIONS ON A HIGHWAY WHERE THERE IS A CONCENTRATION OF CRASHES. WHEN TRAFFIC SIGNALS DO NOT HAVE UNIFORM SPACING AND SPACING IS LESS THAN ABOUT ONE-HALF MILE, EFFICIENT TRAFFIC SIGNAL PROGRESSION IS DIFFICULT AND TRAFFIC SPEEDS ARE REDUCED. AS THE GROWTH CONTINUES IN THE CORRIDOR, UNIFORM TRAFFIC SIGNAL SPACING, AND ALTERNATIVE INTERSECTION DESIGNS SUCH AS ROUNDABOUTS, WILL BE CRITICAL TO BOTH OPERATIONAL AND SAFETY PERFORMANCE.

- **Uniform Traffic Signal Spacing:** INTERSECTIONS THAT ARE SIGNALIZED, AND THOSE THAT MIGHT BE SIGNALIZED IN THE FUTURE, SHOULD BE SPACED AT UNIFORM INTERVALS ACCORDING TO THE ASSIGNED ACCESS MANAGEMENT CATEGORY, OR BASED ON THE FUNCTIONAL CLASS OF THE ROADWAY. IT IS NECESSARY TO ACHIEVE UNIFORM SPACING FOR ALL SIGNALIZED ARTERIALS WHERE MOBILITY IS OF PRIMARY IMPORTANCE. THE LONGER THE SPACING, THE HIGHER THE SPEED LIMIT CAN BE SET AND STILL

ACHIEVE TWO-WAY TRAFFIC PROGRESSION. SPACING VARIES BY CONTEXT, RANGING FROM A MILE OR MORE FOR RURAL, HIGHER-SPEED LOCATIONS TO ONE-EIGHTH OF A MILE FOR URBAN, LOWER-SPEED ENVIRONMENTS.

UNIFORM SIGNAL SPACING ALLOWS MORE EFFICIENT SIGNAL PROGRESSION AND IMPROVES ROADWAY CAPACITY. THE FLEXIBILITY TO VARY CYCLE LENGTHS FOR EFFICIENT TRAFFIC PROGRESSION OVER A RANGE OF TRAFFIC VOLUMES AND SPEEDS GENERALLY INCREASES AS TRAFFIC SIGNAL SPACING INCREASES. AS THE UNIFORM DISTANCE INCREASES, THE SPEED OF TRAFFIC PROGRESSION INCREASES. UNIFORM SPACING IS BEST ACHIEVED DURING THE LAND PLANNING PROCESS WHEN SECONDARY STREETS ARE PLANNED AND INTERSECTING ARTERIALS CAN BE DETERMINED. IDEALLY, A PLAN FOR SIGNAL LOCATIONS IS IN PLACE WELL IN ADVANCE OF APPLICATIONS FOR NEW DEVELOPMENT.

4.2 Land Development Planning

A CRITICAL ISSUE FOR ENSURING THE LONG TERM PERFORMANCE OF SR 109 IS THE MANAGEMENT OF ADJACENT LAND USES AND ESTABLISHING CRITERIA FOR HOW ADJACENT LAND USES ACCESS THE SYSTEM OF PUBLIC STREETS AND HIGHWAYS. THE PRIMARY PLANNING EFFORT SHOULD BE DIRECTED TO CREATING A SECONDARY NETWORK OF LOCAL STREETS AND COLLECTORS. THIS REDUCES THE NEED FOR PRIVATE DIRECT ACCESS TO SR 109. A SECONDARY SYSTEM ALSO BENEFITS COMMUNITIES BY PROVIDING LOCAL CIRCULATION THAT HAS LOWER SPEEDS AND LOWER TRAFFIC VOLUMES AND ALLOWING SAFER TRIPS FROM HOMES TO SERVICES AND BUSINESSES.

ALL PROPERTIES NEED ACCESS. IN ORDER TO REDUCE THE DEMAND FOR DIRECT ACCESS TO SR 109, EVERY NEW SUBDIVISION OF PROPERTY SHOULD REQUIRE INTERNAL STREETS AND TRAFFIC CIRCULATION THAT CONNECTS TO EXISTING LOCAL STREETS OR COLLECTORS AND NOT DIRECTLY TO SR 109. NEW SITE PLANS SHOULD ALSO CONNECT PARKING AND CIRCULATION AREAS TO LOCAL STREETS AND NOT SR 109. CROSS-ACCESS CONNECTIONS AND EASEMENTS, ESPECIALLY IN COMMERCIAL ZONES, SHOULD BE REQUIRED.

SECONDARY SYSTEMS OPEN UP MORE LAND FOR DEVELOPMENT OF ALL TYPES. IF SUFFICIENTLY INTERCONNECTED, A SECONDARY SYSTEM ALLOWS MULTIPLE TRANSPORTATION ROUTES WITHOUT THE NEED FOR TRAVELING ON SR 109 WITH ITS HIGHER SPEEDS, TRAFFIC VOLUMES, AND HIGHER RISK SEVERE CRASHES. BETTER STREET CONNECTIVITY IMPROVES TRANSPORTATION CAPACITY AND SAFETY, OPTIMIZES RESPONSE TIMES OF EMERGENCY VEHICLES, INCREASES EFFICIENCIES OF VARIOUS SERVICES, AND ENHANCES RECREATIONAL OPPORTUNITIES.

Zoning Ordinances and Subdivision Regulations

ZONING REQUIREMENTS ADDRESS LOT DIMENSIONS (E.G., SETBACK AND LOT FRONTAGE), LOT COVERAGE, PARKING, LANDSCAPING, SITE CIRCULATION, DEVELOPMENT INTENSITY OR DENSITY, AND THE PERMITTED USE OF LAND. SUBDIVISION REGULATIONS GOVERN THE DIVISION OF LAND INTO LOTS, BLOCKS, AND PUBLIC WAYS AND CAN ENSURE PROPER STREET LAYOUT IN RELATION TO EXISTING OR PLANNED ROADWAYS, ADEQUATE SPACE FOR EMERGENCY ACCESS AND UTILITIES, AND INTERNAL ACCESS TO SUBDIVISION LOTS.

“... CREATING
A SECONDARY
NETWORK
OF LOCAL
STREETS AND
COLLECTORS ...

“... VEHICLE
CRASHES ARE
THE MOST
LIKELY OR ONE
OF THE MOST
LIKELY CAUSES
OF DEATH AND
INJURIES ...

THE ADOPTION OF A ZONING OVERLAY DISTRICT MAY BE THE EASIEST ADMINISTRATIVE METHOD TO MANAGE ACCESS CONSISTENTLY THROUGHOUT THE 39-MILE SR 109 CORRIDOR. AN OVERLAY DISTRICT WOULD APPLY TO PARCELS THAT ARE ADJOINING OR WITHIN A CERTAIN DISTANCE FROM THE ROADWAY – USUALLY THE OPERATIONAL INFLUENCE AREA (ABOUT 600 FEET). AUGMENTING THE UNDERLYING BASE ZONING, THE OVERLAY DISTRICT WOULD ESTABLISH A UNIQUE SET OF ACCESS STANDARDS AND GUIDELINES FOR THE PURPOSE OF PROTECTING THE LONG-TERM FUNCTION AND EFFICIENCY OF THE ROADWAY.

A DETAILED ACCESS MANAGEMENT PLAN FOR THE CORRIDOR WOULD BE MORE SPECIFIC THAN AN OVERLAY DISTRICT. A DETAILED PLAN CAN IDENTIFY ACCESS NEEDS FOR EACH EXISTING PARCEL, AND REQUIRE IMPORTANT ROADWAY DESIGN ELEMENTS TO IMPROVE THE FUNCTION AND PUBLIC SAFETY OF THE ARTERIAL SUCH AS A RESTRICTIVE MEDIAN WITH PRE-DETERMINED MEDIAN OPENINGS. THESE AND OTHER DESIGN ELEMENTS CAN THEN BE IMPLEMENTED AS DEVELOPMENT AND HIGHWAY RECONSTRUCTION OCCURS.

Transportation Plans

A LOCAL TRANSPORTATION PLAN, WHETHER A PART OF A COMMUNITY'S COMPREHENSIVE PLAN OR A STANDALONE DOCUMENT, IDENTIFIES CURRENT AND FUTURE TRANSPORTATION NEEDS AND HELPS ACHIEVE LONG-RANGE GROWTH AND DEVELOPMENT GOALS. THROUGH THE PUBLIC PLANNING PROCESS, THE TRANSPORTATION PLAN CAN ADOPT AN ACCESS OR ROADWAY FUNCTIONAL CLASSIFICATION HIERARCHY AND BROAD POLICY ON THE FUNCTION AND PROTECTION OF ARTERIALS. ADDITIONALLY, A LOCAL TRANSPORTATION PLAN CAN ESTABLISH MATCHING DIMENSIONAL AND ENGINEERING STANDARDS THAT INCLUDE ACCESS MANAGEMENT TECHNIQUES THAT ARE CONTEXT-SENSITIVE. SUCH PLANS ENSURE THAT TRANSPORTATION DECISIONS, STRATEGIES, AND INVESTMENTS ARE COORDINATED WITH LAND USE AND COMMUNITY GOALS.

A SUCCESSFUL COMMUNITY TRANSPORTATION SYSTEM RELIES ON THE JURISDICTION'S ABILITY TO PROTECT CURRENT AND FUTURE ACCESSIBILITY AND MOBILITY. ACCESS MANAGEMENT CAN BENEFIT THE COMMUNITY BY PROMOTING SAFETY, IMPROVING MULTIMODAL TRANSPORTATION OPTIONS, ENHANCING PROPERTY VALUES BY ENSURING, AND SAFEGUARDING PUBLIC INVESTMENTS IN INFRASTRUCTURE. A GOOD TRANSPORTATION PLAN WILL HELP IMPROVE ACCESSIBILITY AND MOBILITY THROUGHOUT THE COMMUNITY, THEREBY REDUCING TRAVEL TIMES FOR CARS, TRUCKS, TRANSIT, BICYCLISTS, AND PEDESTRIANS.

Technical Standards Manual

WHILE ZONING ORDINANCES, SUBDIVISION REGULATIONS, AND TRANSPORTATION PLANS NEED TO ADDRESS CRITICAL ELEMENTS OF PROPERTY ACCESS, TECHNICAL DESIGN, ENGINEERING DETAILS, AND MATERIAL SPECIFICATIONS CAN BE PUT INTO A FORMAL AND ADOPTED TECHNICAL AND ENGINEERING MANUAL. A TECHNICAL MANUAL ALLOWS THE LOCAL JURISDICTION TO DETERMINE THEIR PREFERENCES FOR STREET DESIGN, STREET TYPES AND BE MORE CONTEXT SENSITIVE TO THE CHARACTER OF THE COMMUNITY. THIS ALSO ALLOWS THE ADOPTION OF MORE STRINGENT ENGINEERING STANDARDS THAN THE STATE DEPARTMENT OF TRANSPORTATION CAN APPLY TO ACCESS PERMITS.

GALLATIN, FOR EXAMPLE, HAS A LIMITED TECHNICAL APPENDIX TO ITS SUBDIVISION REGULATIONS, WHILE OTHER CITIES AND COUNTIES HAVE ADOPTED MANUALS SPECIFIC FOR ACCESS MANAGEMENT DECISIONS AND ENGINEERING.

Transportation Impact Studies

TRANSPORTATION IMPACT STUDIES SHOULD BE PREPARED BY APPLICANTS FOR ZONING, SUBDIVISION, SITE DEVELOPMENT, AND ACCESS PERMITS. CURRENTLY, THE LOCAL THRESHOLD FOR UNDERTAKING THESE STUDIES IN THE SR 109 IS HIGH. GALLATIN, FOR EXAMPLE, USES 125 RESIDENTIAL UNITS AND 1,000 TO 3,000 DAILY TRIPS TO TRIGGER A LEVEL ONE STUDY. TDOT GENERALLY USES 250 DAILY TRIPS, OR 50 TO 100 UNITS, AS THE THRESHOLD FOR A STUDY. CURRENT RESEARCH, FOR EXAMPLE, RECOMMENDS THAT FIVE LEFT TURNS PER HOUR FROM AN ARTERIAL IS A SUFFICIENT BENEFIT/COST WARRANT FOR A LEFT TURN LANE. THIS EQUATES TO ABOUT 25 RESIDENTIAL UNITS AND AVERAGE DAILY TRAFFIC OF ABOUT 200 TRIPS.

THE SCOPE OF THESE STUDIES CAN BE TIERED RELATIVE TO THE SIZE OF THE DEVELOPMENT. THE IMPORTANT PURPOSES OF THE STUDY ARE TO IDENTIFY INCREASED TRAFFIC LOAD AT INTERSECTIONS, INCREASED TRAFFIC VOLUMES ON STREETS, AND APPROPRIATE ENGINEERING STANDARDS TO MITIGATE THE IMPACTS

A TRANSPORTATION IMPACT STUDY ASSESSES THE EFFECTS THAT A PARTICULAR DEVELOPMENT'S TRAFFIC WILL HAVE ON THE TRANSPORTATION NETWORK IN THE COMMUNITY. AS PUBLIC BUDGETS BECOME TIGHTER, THERE IS AN INCREASED NEED TO DETERMINE DEVELOPER CONTRIBUTIONS TO TRANSPORTATION IMPROVEMENTS TO MITIGATE PUBLIC SAFETY AS WELL AS SYSTEM PERFORMANCE IMPACTS. FAILURE TO IDENTIFY IMPROVEMENTS LINKED TO NEW DEVELOPMENT SHIFTS THE FINANCIAL RESPONSIBILITY TO THE TAXPAYERS IN GENERAL, AND MAY RESULT IN YEARS, OR EVEN DECADES, OF DELAY UNTIL IMPROVEMENTS ARE IN PLACE DUE TO LIMITED PUBLIC FUNDS.

4.3 Access Permitting Processes and Coordination

TDOT STANDARDS FOR DRIVEWAY PERMITS WILL CONTINUE TO BE A CRITICAL FACTOR IN THE MANAGEMENT AND PRESERVATION OF THE SAFETY AND MOBILITY OF SR 109. WHILE THE NEW TDOT DRIVEWAY PERMITTING MANUAL HAS SOME IMPROVED CRITERIA, IT REMAINS INSUFFICIENT TO PROTECT SR 109 FROM THE ANTICIPATED CUMULATIVE IMPACTS OF PIECEMEAL ACCESS PERMITTING. WITHOUT STRONG SUPPORT IN THE FORM OF NEW LOCAL DRIVEWAY AND LAND DIVISION REQUIREMENTS IN ZONING, SUBDIVISION, AND ENGINEERING ORDINANCES, THE WORST CASE SCENARIOS PRESENTED BY THIS STUDY WILL OCCUR WITH DETRIMENTAL CONSEQUENCES FOR THE SAFETY, MOBILITY, AND ULTIMATELY, THE GROWTH OF THE MUNICIPALITIES AND COUNTIES THAT RELY ON SR 109 AS A PRIMARY MOBILITY CORRIDOR.

THE NEW TDOT DRIVEWAY MANUAL HAS A VERY IMPORTANT NEW SECTION REGARDING COORDINATION WITH LOCAL AUTHORITIES. TDOT WILL NOW RECOGNIZE AND WORK WITHIN A LOCAL AGENCY'S ACCESS ADOPTED REQUIREMENTS AS LONG AS THEY ARE THE SAME OR MORE RESTRICTIVE THAN



THE MAJORITY
OF CRASHES
ON SR 109
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TO ACCESS
MANEUVERS . . .

... ESTABLISH A UNIQUE SET OF ACCESS STANDARDS ...

THE TDOT MANUAL. COORDINATION AND LOCAL REQUIREMENTS IN THE NEW DRIVEWAY MANUAL INCLUDE:

“The Department encourages cities, counties, or other local authorities to develop their own regulations governing the construction and design of driveways and intersections. If the ordinances or regulations of more than one jurisdiction apply to a proposed driveway or intersection, it is the responsibility of the applicant to contact each authority to ascertain all requirements and obtain approval from all jurisdictions. The more restrictive regulations shall apply, but the Department shall not issue a permit for a highway entrance that may meet local guidelines but violates the requirements of this manual. Also, the issuance of a permit by the Department does not eliminate the applicant’s need to meet the requirements of local authorities.”

THESE REVISIONS PROVIDE A SIGNIFICANT OPPORTUNITY FOR CITIES AND COUNTIES TO ADOPT MORE STRINGENT ACCESS MANAGEMENT CRITERIA IN THEIR ZONING AND SUBDIVISION REQUIREMENTS AND ACCESS MANAGEMENT PLANS. DRIVEWAY AUTHORIZATION FOR LOCAL LAND USE SHOULD BE TREATED DIFFERENTLY THAN BUILDING PERMITS AND SITE PLANS. THE DRIVEWAY IS AN ENCROACHMENT ON THE PUBLIC RIGHT-OF-WAY. AS SUCH, IT IS MORE OF A LICENSE, AND IS NOT AND CANNOT BE A PERMANENT GRANT OR COMMITMENT BY THE GOVERNMENT. LIKE A DRIVER’S LICENSE, IT IS PERMISSION TO USE THE PUBLIC RIGHT-OF-WAY. A NEW DRIVEWAY IS USUALLY ENGINEERED BASED ON THE APPLICANT’S ANTICIPATED USE OF THE PROPERTY AT THE TIME OF THE APPLICATION. OVER TIME, THE USE OF THE DRIVEWAY, SUCH AS AN INCREASE IN VOLUME OR IN WEIGHT AND FREQUENCY OF LARGE TRUCKS, MIGHT OVERWHELM OR AT LEAST BE AN ACTIVITY THAT IS BELOW THE ENGINEERING MINIMUMS FOR THE ORIGINAL APPROVED DESIGN.

TO AVOID POTENTIAL TORT LIABILITY, SAFETY, AND OPERATIONAL PROBLEMS THAT A SIGNIFICANT CHANGE IN ACCESS USE CAN CAUSE, THE AGENCY CAN SHIFT RESPONSIBILITY TO THE PERMITTEE BY INCORPORATING INTO THE PERMIT NOT JUST THE IMMEDIATE CONSTRUCTION REQUIREMENTS BUT ALSO THE LIMITS, IF ANY, THE DRIVEWAY MAY REQUIRE. THE PERMIT MAY FURTHER STATE THAT A USE OF THE DRIVEWAY NOT APPROVED BY THE PERMIT OR NOT ADDRESSED IN THE ORIGINAL APPLICATION REQUIRES A NEW APPLICATION AND DECISION PROCESS TO DETERMINE IF MODIFICATIONS ARE NECESSARY FOR PUBLIC SAFETY AND TRAFFIC OPERATIONS.

Cooperative Review of Proposed Development Plans

THE SUBDIVISION AND SITE PLAN APPROVAL PROCESSES PROVIDES AGENCIES WITH AN EARLY OPPORTUNITY TO ADDRESS ACCESS CONSIDERATIONS AND PREVENT ACCESS PROBLEMS BEFORE APPROVALS ARE GIVEN FOR SITE CONSTRUCTION.


IF ZONING AND SUBDIVISION APPROVALS WERE GRANTED PREVIOUSLY, THE BUILDING AND ACCESS PERMIT PROCESS SHOULD NOT BE IGNORED AS AN OPPORTUNITY TO ADDRESS ACCESS LOCATION, DESIGN, AND OFF-SITE TRAFFIC IMPACTS. THERE IS NO SUCH THING AS A SAFE DRIVEWAY. WITH NEW CONSTRUCTION OR RECONSTRUCTION, THERE MAY BE AN OPPORTUNITY TO REQUIRE A NEW DRIVEWAY LOCATION OR A MODIFICATION TO AN EXISTING

DRIVEWAY. THE SAFETY OF EVERY DRIVEWAY NEEDS TO BE ADDRESSED FOR ENGINEERING IMPROVEMENTS, INCLUDING THE POSSIBLE RELOCATION OF AN EXISTING ACCESS.

SOME JURISDICTIONS REQUIRE A DEVELOPER TO NOTIFY ABUTTING PROPERTY OWNERS DURING THE DEVELOPMENT APPROVAL PROCESS. THIS NOTIFICATION SHOULD INCLUDE THE APPLICABLE STATE TRANSPORTATION AGENCY, SUCH AS TDOT, UTILITY DISTRICTS, SCHOOLS, AND OTHER STAKEHOLDERS THAT WILL FEEL THE IMPACTS OF THE NEW DEVELOPMENT. NOTIFICATION REQUESTS SHOULD NOT BE LIMITED TO ABUTTING OWNERS, BUT EXTEND TO INCLUDE THE INFLUENCE AREA OF THE ACTIVITY RELATED TO THE PROPOSED DEVELOPMENT. A STATE HIGHWAY MAY BE 1,000 FEET AWAY, HOWEVER, IF MOST OF THE SITE TRAFFIC WILL CONNECT TO THE HIGHWAY USING AN EXISTING LOCAL STREET, THE CURRENT DESIGN OF THE STATE INTERSECTION NEEDS TO BE EVALUATED FOR IMPROVEMENT.

COMMITMENT TO THE GOALS AND RECOMMENDATIONS OF THE SR 109 ACCESS MANAGEMENT STUDY IS IMPORTANT TO ALL STAKEHOLDERS RELYING ON THE SAFE AND EFFICIENT OPERATION OF SR 109. ACCESS DECISIONS MADE WITHIN ONE JURISDICTION WILL IMPACT ACCESSIBILITY, MOBILITY, AND ECONOMIC DEVELOPMENT IN OTHER JURISDICTIONS. FOR EXAMPLE, A NEW TRAFFIC SIGNAL FOR A CITY CROSS-STREET WILL IMPACT ALL USERS — ESPECIALLY COMMUTERS, SERVICE PROVIDERS, AND FREIGHT HAULERS. WHEN AGENCY STAFF AND COMMISSIONERS ARE CONSIDERING DEVELOPMENT APPLICATIONS — AND THEREFORE ACCESS DECISIONS — ALONG SR 109, THERE SHOULD ALSO BE OPEN DISCUSSION AND ANALYSIS OF THE POTENTIAL IMPACTS ON OTHER JURISDICTIONS. THE SR 109 ACCESS MANAGEMENT STUDY SHOULD SERVE AS A GUIDE TO DECISION MAKERS UNTIL THE RECOMMENDATIONS ARE ADOPTED AT THE LOCAL LEVEL.

INTERAGENCY COORDINATION MECHANISMS AND FREQUENT COMMUNICATIONS IMPROVE DECISIONS, REDUCE MISUNDERSTANDINGS, AND STREAMLINE ADMINISTRATIVE PROCEDURES. IN THIS REGARD, THE SR 109 CORRIDOR MANAGEMENT COMMITTEE ESTABLISHED UNDER THE SR 109 CMA CAN CONTINUE TO PROVIDE AN IMPORTANT FORUM FOR REGULAR COORDINATION AND COMMUNICATION. DURING BUSIER DEVELOPMENT PERIODS, MONTHLY MEETINGS CAN BE PRODUCTIVE. IN SLOWER PERIODS, BI-MONTHLY OR QUARTERLY MEETINGS KEEP EVERYONE UP TO DATE AND MAINTAIN THE AGENCY RELATIONSHIPS SO VITAL TO COMMUNICATION AND COORDINATION.



THERE IS NO
SUCH THING
AS A SAFE
DRIVEWAY . . .

SECRET - R.N. 104H-E-16105-2,074
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5. IMPLEMENTATION RECOMMENDATIONS AND ACTIONS

IN ORDER TO IMPLEMENT THE STRATEGIES AND TECHNIQUES NECESSARY TO PRESERVE THE FUNCTIONAL PERFORMANCE OF SR 109 AND TO ADDRESS GROWING PUBLIC SAFETY PROBLEMS, THE STATE DEPARTMENT OF TRANSPORTATION AND EACH CITY AND COUNTY MUST OFFICIALLY ACT AND APPLY MORE MODERN STANDARDS TO ACCESS MANAGEMENT. THE FAILURE TO EXERCISE STRONGER ACCESS CONTROL MEASURES ON SR 109 WILL RESULT IN AN INCREMENTAL AND CONTINUING LOSS OF PERFORMANCE, LONGER TRAVEL TIMES, MORE DELAY AND CONGESTION, AND A STEADY INCREASE IN CRASH RATES. THERE ARE SEVERAL PLANNING, ENGINEERING, AND INTERAGENCY COORDINATION STEPS PARTICIPATING JURISDICTIONS CAN TAKE TO ADDRESS THESE CHALLENGES.

5.1 Planning

Recommendation #1: Adopt Access Management Classifications

THE SR 109 ACCESS MANAGEMENT STUDY IDENTIFIES A METHOD FOR CONTEXT SENSITIVE ACCESS MANAGEMENT BY SETTING AN ACCESS CLASSIFICATION FOR EACH SEGMENT OF SR 109. THE ACCESS STANDARDS MAINLY AFFECT THE SPACING OF FULL MOVEMENT INTERSECTIONS AND THE USE OF RESTRICTIVE MEDIANS. ABOVE ALL ELSE, THESE TWO FACTORS HAVE THE MOST IMPACT ON TRAFFIC SAFETY AND TRANSPORTATION EFFICIENCY.

- **ACTION #1:** TO IMPLEMENT THE SR 109 ACCESS MANAGEMENT CLASSIFICATION SYSTEM, STATE AND LOCAL JURISDICTIONS SHOULD FORMALLY APPROVE THE FINAL SR 109 ACCESS MANAGEMENT STUDY TO PROVIDE GUIDANCE AND A BASIS FOR DECISIONS REGARDING THOROUGHFARE PLANNING, LOCAL STREET NETWORKS, AND MANAGING TRAFFIC SIGNAL LOCATIONS IN THE SR 109 CORRIDOR.

Recommendation #2: Update Land Development Regulations, Ordinances, and Policies

THERE ARE SEVERAL WAYS THAT LOCAL JURISDICTIONS CAN ADDRESS ACCESS MANAGEMENT STRATEGIES IN THEIR PLANS, ORDINANCES, AND STANDARDS, INCLUDING COMPREHENSIVE PLANS, TRANSPORTATION PLANS, ZONING ORDINANCES, AND SUBDIVISION REGULATIONS.

Zoning Ordinances

ZONING ORDINANCES CAN BE WRITTEN TO ADDRESS THE CAPACITY AND SAFETY OF THE ROADWAY SYSTEM IN THE SAME MANNER OTHER PORTIONS OF A ZONING DISTRICT MIGHT ADDRESS BUILDING DENSITY, HEIGHTS, AND FRONTAGES.

... APPLY MORE
MODERN
STANDARDS
TO ACCESS
MANAGEMENT.

“ONE OF
THE MOST
EFFECTIVE
TOOLS AND
PERHAPS
THE MOST
EFFICIENT WAY
TO ADDRESS
THE SPECIFIC
GOALS . . .

- **ACTION #1:** TO IMPLEMENT BEST PRACTICES IN ZONING REQUIREMENTS RELATED TO ACCESS, REVIEW AND AMEND AS NEEDED THE FOLLOWING TYPICAL ZONING ORDINANCE ELEMENTS:
 - MINIMUM LOT SIZES ACCORDING TO USE TO ENSURE ON-SITE CIRCULATION AND CAPACITY FOR THE USE;
 - STRUCTURE SETBACKS TO AVOID INTERFERENCE WITH PUBLIC WAY IMPROVEMENTS AND UTILITIES;
 - LOT WIDTH TO DEPTH RATIOS TO ENSURE SUFFICIENT FRONTAGE AND PREVENT FLAG LOTS;
 - CROSS-ACCESS AND JOINT-ACCESS REQUIREMENTS TO IMPROVE CIRCULATION IN COMMERCIAL ZONES;
 - SITE DESIGN STANDARDS FOR PARKING, CIRCULATION, AND CAPACITY; AND
 - REQUIREMENTS FOR PATHS AND SIDEWALKS IN ADDITION TO MOTOR VEHICLE ACCOMMODATIONS.

ONE OF THE MOST EFFECTIVE TOOLS AND PERHAPS THE MOST EFFICIENT WAY TO ADDRESS THE SPECIFIC GOALS, PURPOSES, AND NEEDS OF THE SR 109 CORRIDOR IS AN ACCESS MANAGEMENT ZONING OVERLAY DISTRICT. AN OVERLAY DISTRICT APPLIES TO PARCELS THAT ARE ADJOINING OR WITHIN A CERTAIN DISTANCE FROM THE ROADWAY, AND SET SPECIFIC ACCESS MANAGEMENT CRITERIA. AN OVERLAY DISTRICT IS ALSO MORE USEFUL WHEN THE LONG-TERM LAND USE AND UNDERLYING ZONING IS NOT YET DETERMINED.

- **Action #2:** ADOPT AN SR 109 ACCESS MANAGEMENT OVERLAY DISTRICT FOR PROPERTIES IN THE SR 109 CORRIDOR. WHILE APPROVING THE SR 109 ACCESS MANAGEMENT STUDY CAN SERVE AS THE POLICY BASIS FOR IMPLEMENTING THE RECOMMENDED STANDARDS, AN OVERLAY DISTRICT PROVIDES A REGULATORY TOOL FOR COMPLYING WITH THE STUDY'S FINDINGS. TO ASSIST ADOPTION OF SUCH AN OVERLAY DISTRICT, A MODEL ORDINANCE IS PROVIDED IN APPENDIX A OF THIS STUDY.

Subdivision Regulations

SUBDIVISION REGULATIONS CONTROL THE DIVISION OF LAND INTO LOTS, BLOCKS, AND PUBLIC WAYS FOR ACCESS TO THE LOTS AND BLOCKS CREATED. THE PROCESS SHOULD ENSURE A SUFFICIENT STREET LAYOUT IN RELATION TO EXISTING OR PLANNED THOROUGHFARES WITH ADEQUATE WIDTH FOR EMERGENCY ACCESS AND UTILITIES.

- **Action #3:** ESTABLISH COORDINATED STATE AND LOCAL PROCESSES FOR REVIEWING SUBDIVISION APPLICATIONS TO ENSURE PUBLIC WAYS AND LOTS CREATED WILL BE CONSISTENT WITH THE SR 109 STUDY.

5.2 Engineering

Recommendation #3: Apply Technical Improvements to Sections with High Crash Rates

THE SR 109 ACCESS MANAGEMENT STUDY HAS IDENTIFIED HIGHWAY SEGMENTS IN THE CORRIDOR WITH HIGHER THAN AVERAGE AND VERY HIGH CRASH RATES. ALTHOUGH THE STUDY DID NOT CONDUCT INDIVIDUAL ANALYSIS AT THESE LOCATIONS TO DETERMINE APPROPRIATE SAFETY IMPROVEMENTS, THE DATA POINTS PRIMARILY TO ACCESS RELATED CRASHES.

- **Action #1:** IMMEDIATELY ADDRESS SAFETY ISSUES AT HIGH CRASH RATE LOCATIONS WITH TYPICAL IMPROVEMENTS INCLUDING THE INSTALLATION OF BOTH RIGHT AND LEFT-TURN LANES AT BUSY ACCESS POINTS, THE LENGTHENING OF TURN LANES AT EXISTING LOCATIONS TO REDUCE DEPARTURE SPEED DIFFERENTIALS, AND THE INSTALLATION OF RESTRICTIVE MEDIANS TO PREVENT MID-BLOCK LEFT-TURN LANES.
- **Action #2:** THE 0.8 MILE SEGMENT FROM SOUTH PARK CIRCLE TO THE BEGINNING OF THE GALLATIN BYPASS HAS HAD OVER 90 CRASHES DURING THE MOST RECENT THREE-YEAR PERIOD AND OVER 70 PERCENT ARE ACCESS RELATED. A MORE AGGRESSIVE DESIGN, SUCH AS THE USE OF A RESTRICTIVE MEDIAN, IS RECOMMENDED FOR THIS SEGMENT AS IT MAY NOT BE FEASIBLE AT THIS TIME TO CLOSE DRIVEWAYS.

Recommendation #4: Set Access Engineering and Safety Standards in Local Technical Manuals

WHILE ZONING ORDINANCES AND SUBDIVISION REGULATIONS NEED TO ADDRESS SOME OF THE CRITICAL ELEMENTS OF ACCESS MANAGEMENT SUCH AS WHERE ACCESS IS ALLOWED, TECHNICAL DESIGN AND ENGINEERING DETAILS AND MATERIAL SPECIFICATIONS CAN BE PLACED INTO A FORMAL AND ADOPTED CITY TECHNICAL MANUAL. SOME CITIES AND COUNTIES HAVE ADOPTED MANUALS SPECIFIC FOR ACCESS MANAGEMENT DECISIONS AND ENGINEERING. THESE ARE SIMILAR TO A STATE DEPARTMENT OF TRANSPORTATION TYPE DRIVEWAY MANUAL, BUT ALLOW THE LOCAL JURISDICTION TO DETERMINE ITS OWN PREFERENCES AND ADDRESS ALL STREET TYPES AND BE MORE CONTEXT SENSITIVE TO THE CHARACTER OF THE COMMUNITY.

- **Action #1:** AMEND OR ADOPT APPLICABLE TECHNICAL MANUALS TO ENSURE ENGINEERING BEST PRACTICES IN ACCESS MANAGEMENT. STANDARDS NEED TO BE CONSIDERED AS PUBLIC SAFETY STANDARDS AS WELL AS THOSE NECESSARY FOR ACCOMMODATION OF VEHICLE SIZE, FREQUENCY, AND WEIGHT. STANDARDS TO BE ADDRESSED INCLUDE:
 - DRIVEWAY DESIGN ELEMENTS INCLUDING WIDTH, GRADE, RADII, THROAT, ADA ACCOMMODATION;
 - DRIVEWAY SPACING/SEPARATION REQUIREMENTS;
 - COMMERCIAL DRIVEWAY STANDARDS (DESIGN SPEED);
 - DRIVEWAY DESIGN BASED ON THE SPEED OF THE ROAD AND FOR PEAK WEEKDAY VOLUMES;

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“ . . . INCORPORATE NATIONAL BEST PRACTICES . . .

- REQUIREMENTS FOR LEFT AND RIGHT-TURN LANES AND DECELERATION LENGTHS;
- DRIVEWAY/SITE DESIGN TO ACCOMMODATE QUEUED VEHICLES;
- DRIVEWAY/SITE DESIGN TO ACCOMMODATE INTERNAL/OFF-STREET CIRCULATION;
- SAFE AND EFFICIENT PEDESTRIAN PATHWAYS FROM DEVELOPMENT TO TRANSIT AND PARKING;
- SIGHT DISTANCE/VISIBILITY FOR VEHICLES ENTERING/EXITING ROADWAY;
- PROHIBITED OR REDUCED LEFT-TURN MOVEMENTS ON THE HIGHWAY;
- MEDIAN OPENINGS FOR U-TURN OPPORTUNITIES;
- SPECIFICATIONS FOR CONSTRUCTION MATERIALS, INSTALLATION PROCEDURES, AND QUALITY CONTROL TO ENSURE THE OVERALL QUALITY OF CONSTRUCTION AND LOW MAINTENANCE; AND
- PROHIBITED SIGNS/STRUCTURES THAT DISTRACT DRIVERS OR INTERFERE WITH SIGHT DISTANCE.

Recommendation #5: Update the Tennessee Department of Transportation Driveway Rules and Driveway Manual

WHILE THE TENNESSEE DEPARTMENT OF TRANSPORTATION RULES AND “MANUAL FOR CONSTRUCTING DRIVEWAY ENTRANCES ON STATE HIGHWAYS” HAVE BEEN RECENTLY UPDATED, THE UPDATES ARE NOT A SUBSTANTIAL STEP FORWARD IN MODERNIZATION. THE CHANGES IN THE TDOT REQUIREMENTS WILL NOT BE SUFFICIENT TO PROTECT SR 109 AT THE LEVEL NECESSARY TO MAKE IT SAFER, EFFICIENT, AND MORE CAPABLE OF HANDLING CONTINUING GROWTH. THE NEW MANUAL DOES INCLUDE SOME LOCATION AND DESIGN IMPROVEMENTS AND CORNER CLEARANCE IS LENGTHENED. THESE IMPROVEMENTS, HOWEVER, DO NOT RISE TO THE LEVEL OF CURRENT NATIONAL PRACTICE AND ARE IMPROVEMENTS ONLY RELATIVE TO THE 1978 RULES.

- **Action #1:** UPDATE THE TDOT DRIVEWAY RULES AND DRIVEWAY MANUAL TO INCORPORATE NATIONAL BEST PRACTICES AND SPECIFICALLY ADDRESS THE LENGTH OF AUXILIARY TURN LANES, LEFT AND RIGHT-TURN LANES AT CERTAIN ACCESS POINTS, WARRANTS FOR TURN-LANE INSTALLATION, AND FULL MOVEMENT INTERSECTION SPACING.

Recommendation #6: Adopt or Update Transportation Impact Study Requirements

CURRENTLY, THE THRESHOLD FOR REQUIRING A TRAFFIC IMPACT STUDY IS HIGH. WITH THE GROWING CAPACITY LIMITATIONS AND FUNDING SHORTAGES TO IMPROVE ROADS, CONSIDERATION SHOULD BE GIVEN TO USING LOWER THRESHOLDS THAN CURRENTLY APPLIED.

- **Action #1:** ADOPT BY ORDINANCE A TRANSPORTATION IMPACT STUDY REQUIREMENT FOR ANY LAND DEVELOPMENT PROPOSAL PROJECTED TO

GENERATE MORE THAN 200 VEHICULAR TRIPS PER DAY AND TIER THE LEVEL OF STUDY TO THE SIZE OF THE DEVELOPMENT.

Recommendation #7: Update Site Design and Approval Processes

DEVELOPMENT REVIEW AND APPROVAL PROCESSES PROVIDE AN AGENCY WITH AN OPPORTUNITY TO ADDRESS ACCESS CONSIDERATIONS AND PREVENT ACCESS PROBLEMS BEFORE SITE LAYOUT IS DETERMINED AND CONSTRUCTION BEGINS. EVEN IF ZONING AND SUBDIVISION APPROVALS ARE COMPLETE, THE BUILDING PERMIT PROCESS SHOULD NOT BE IGNORED AS AN OPPORTUNITY TO ADDRESS OFF-SITE IMPACTS SUCH AS DRIVEWAY TRAFFIC. IF A NEW BUILDING WILL REQUIRE A MODIFICATION TO AN EXISTING DRIVEWAY, THE SAFETY OF THE DRIVEWAY AT THE VERY LEAST NEEDS TO BE ADDRESSED FOR ENGINEERING IMPROVEMENTS INCLUDING THE POSSIBLE RELOCATION OF THE ACCESS. A CHANGE IN PROPERTY USE THAT WILL CHANGE THE USE OF THE DRIVEWAY SHOULD BE A TRIGGER FOR DRIVEWAY REVIEW AND POSSIBLE MODIFICATION FOR SAFETY AND OPERATIONAL PURPOSES.

- **Action #1:** INCORPORATE ACCESS MANAGEMENT BEST PRACTICES IN ZONING, SUBDIVISION, BUILDING PERMIT, CHANGE OF USE PERMIT, AND DRIVEWAY PERMIT REVIEW AND APPROVAL PROCESSES.

5.3 Interagency Coordination

Recommendation #8: Increase Coordination and Communication with the Tennessee Department of Transportation

THE RECENTLY APPROVED REVISIONS TO THE TENNESSEE DEPARTMENT OF TRANSPORTATION DRIVEWAY RULES INCREASES THE VALUE OF LOCAL AGENCIES ADOPTING LOCAL REGULATIONS AND ORDINANCES SUPPORTING ACCESS MANAGEMENT. THE NEW RULE DIRECTS TDOT TO RECOGNIZE AND WORK WITHIN LOCAL ACCESS REQUIREMENTS AS LONG AS THEY ARE THE SAME OR MORE RESTRICTIVE THAN THE NEW TDOT DRIVEWAY MANUAL. WORKING TOGETHER, THE DEVELOPER, THE LOCAL JURISDICTION, AND TDOT CAN DETERMINE THE BEST ROAD NETWORK, LOCAL CIRCULATION, AND APPROPRIATE CONNECTIONS TO SR 109. IF THE JURISDICTION HAS ADOPTED RESTRICTIVE ACCESS CRITERIA FOR SR 109, THIS WILL BE SUPPORTED BY TDOT.

- **Action #1:** ESTABLISH A MEMORANDUM OF AGREEMENT BETWEEN TDOT AND LOCAL AGENCIES TO COORDINATE SR 109 ACCESS PERMITTING AND COOPERATIVE REVIEWS OF PROPOSED LAND USE CHANGES IN THE SR 109 CORRIDOR.
- **Action #2:** UPDATE PROCEDURES IN ZONING, SUBDIVISION, AND DEVELOPMENT REVIEW PROCESSES TO REQUIRE THE DEVELOPER TO NOTIFY ABUTTING PROPERTY OWNERS DURING APPROVAL PROCESSES. NOTIFICATION SHOULD INCLUDE TDOT, UTILITY DISTRICTS, SCHOOLS, AND OTHER STAKEHOLDERS THAT WILL BE IMPACTED BY THE NEW LAND USE ACTIVITY.





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ADOPTED
RESTRICTIVE
ACCESS CRITERIA
FOR SR 109 ...

Recommendation #9: Monitor All Access Connections and Crash Statistics

THE CURRENT CRASH FREQUENCY ON SR 109 IS A COMMUNITY HEALTH PROBLEM. ADDING ACCESS CONNECTIONS TO SR 109 WILL INCREASE THE FREQUENCY OF SAFETY PROBLEMS. MAKING IMPROVEMENTS IN ACCESS DESIGNS, ADDRESSING HOT SPOTS, AND IMPLEMENTING IMPROVED PLANNING PRACTICES WILL HELP REDUCE CRASH RATES.

- **Action #1:** TO TRACK CHANGES, IDENTIFY GROWING PROBLEM SEGMENTS, AND PROPOSE IMPROVEMENTS, MONITOR ALL PUBLIC AND PRIVATE ACCESS CONNECTIONS TO SR 109 AS WELL AS CRASH STATISTICS ON NO LESS THAN AN ANNUAL BASIS.
- **Action #2:** ALLOCATE BUDGET AND STAFF RESOURCES NECESSARY TO MAKE ROAD IMPROVEMENTS, ADOPT NEW STANDARDS, AND INCREASE LAW ENFORCEMENT.

TABLE 5-1. SR 109 ACCESS MANAGEMENT IMPLEMENTATION RECOMMENDATIONS AND ACTIONS

 RECOMMENDATION	 ACTION	 TIME FRAME	 LEAD
PLANNING			
#1: Adopt Access Management Classifications	1. Approve formally the final SR 109 Access Management Study to provide guidance and basis for decisions regarding thoroughfare planning, local street network, and managing traffic signal locations in the SR 109 corridor.	Immediate	State & Local Jurisdictions
#2: Update Land Development Regulations, Ordinances, and Policies	1. Review and amend as needed the following typical zoning ordinance elements: minimum lot sizes, structure setbacks, lot width/depth ratios, cross access, and joint access, parking and circulation, and paths and sidewalks.	Near-Term (1-3 years)	Local Jurisdictions
	2. Adopt an SR 109 access management overlay district for properties in the SR 109 corridor. While approving the SR 109 Access Management Study, can serve as the policy basis for implementing the recommended standards and overlay district provides a regulatory tool for complying with the study's findings. To assist adoption of such an overlay district, a model ordinance is provided in Appendix A of this study.	Near-Term (1-3 years)	Local Jurisdictions
ENGINEERING			
#3: Apply Technical Improvements to Sections with High Crash Rates	1. Immediately address safety issues at high crash rate locations with typical improvements including the installation of both right and left-turn lanes at bus access points, the lengthening of turn lanes at existing locations to reduce departure speed differentials, and the installation of restrictive medians to prevent mid-block left turn-lanes.	Immediate	State
	2. The 0.8 mile segment from South Park Circle to the beginning of the Gallatin Bypass has had over 90 crashes during the most recent three-year period and over 70 percent are access-related. A more aggressive design, such as the use of a restrictive median, is recommended for this segment as it may not be feasible at this time to close driveways.	Immediate	State



RECOMMENDATION



ACTION



TIME FRAME



LEAD

#4: Set Access Engineering and Safety Standards in Local Technical Manuals	1. Amend or adopt applicable technical manuals to ensure engineering best practices in access management. Standards need to be considered as public safety standards as well as those necessary for accommodation of vehicle size, frequency, and weight.	Near-Term (1-3 years)	Local Jurisdictions
#5: Update the Tennessee Department of Transportation Driveway Rules and Driveway Manual	1. Update the TDOT Driveway Rules and Driveway Manual to incorporate national best practices and specifically address the length of auxiliary turn lanes, left and right-turn lanes at certain access points, warrants for turn-lane installation and full movement intersection spacing.	Near-Term (1-3 years)	State
#6: Adopt or Update Transportation Impact Study Requirements	1. Adopt by ordinance a Transportation Impact Study requirement for any land development proposal projected to generate more than 200 vehicular trips per day and tier the level of study to the size of the development.	Near-Term (1-3 years)	Local Jurisdictions
#7: Update Site Design and Approval Processes	1. Incorporate access management best practices in zoning, subdivision, building permit, change of use permit, and driveway permit review and approval processes.	Near-Term (1-3 years)	State & Local Jurisdictions

INTERAGENCY COORDINATION

#8: Increase Coordination and Communication with the Tennessee Department of Transportation	1. Establish memorandum of agreement between TDOT and local agencies to coordinate SR109 access permitting and cooperative reviews of proposed land use changes in the SR 109 corridor.	Immediate	State & Local Jurisdictions
	2. Update procedures in zoning, subdivision and development review processes to require the developer to notify abutting property owners during approval processes. Notification should include TDOT, utility districts, schools, and other stakeholders that will be impacted by the new land use activity.	Immediate	Local Jurisdictions
#9: Monitor All Access Connections and Crash Statistics	1. To track changes, identify growing problem segments and propose improvements, monitor all public and private access connections to SR109 as well as crash statistics on a less than an annual basis.	Near-Term (1-3 years)	State & Local Jurisdictions
	2. Allocate budget and staff resources necessary to make road improvements, adopt new standards, and increase law enforcement.	Near-Term (1-3 years)	State & Local Jurisdictions