

INTERCHANGE JUSTIFICATION STUDY

INTERSTATE ROUTE 40

AT

BECKWITH ROAD

MOUNT JULIET

WILSON COUNTY

PREPARED BY

TENNESSEE DEPARTMENT OF TRANSPORTATION

BUREAU OF PLANNING AND DEVELOPMENT

JUNE 1996

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CHAPTER 1

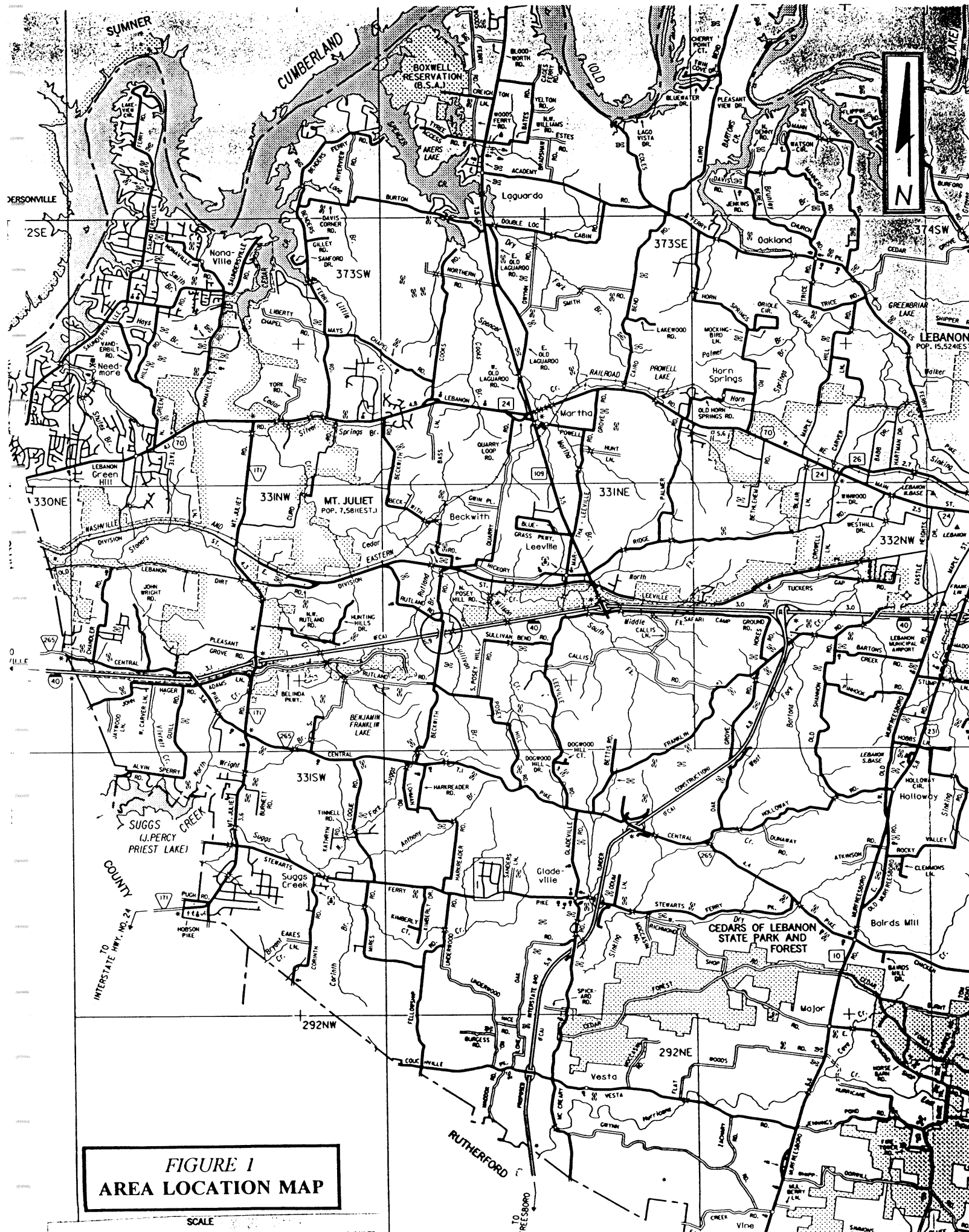
Introduction

A. Purpose of Study

The purpose of this study is to determine a feasible interchange design at Interstate Route 40 and Beckwith Road in Mount Juliet, Wilson County. The study was initiated through a request from David Waynick, Mayor of Mount Juliet, to Commissioner J. Bruce Saltsman, Sr.. Copies of the correspondence are included in the appendix.

The interchange will provide improved access to the Industrial Park located east of Mount Juliet Road and north of Old Lebanon Dirt Road and to the large residential area south of I-40. The adjoining interchange at State Route 171 is also experiencing operational problems. With the opening of 840 South and the anticipated growth in the area, the new interchange is anticipated to provide much needed relief. The operational deficiencies, supported by the traffic analyses, are addressed in this study. The Area Location Map (Figure 1) shows the study area.

The factors considered in the justification study for the interchange at this location are traffic operations, right-of-way requirements, construction cost and land use impacts.



**FIGURE 1
AREA LOCATION MAP**

SCALE
0 1 2 3 4 MILES

B. Description of Project Location

The subject interchange is located in Mount Juliet, Wilson County. It is approximately 5.2 km (3.2 miles) east of the State Route 171 (Mount Juliet Road) interchange and 4.5 km (2.8 miles) west of the State Route 109 interchange. The Project Location Map (Figure 2) shows the proposed location.

C. Relationship To Other Highway Improvement Plans and Programs

The Beckwith Road Interchange was identified in the *Mt. Juliet Corridor Study* prepared for the City of Mount Juliet and Nashville Area Metropolitan Planning Organization (MPO) by RUST Environment and Infrastructure in association with RPM and Associates completed March 1995. The interchange was recommended improvement priority two (2) in the study. In addition, this interchange was recommended in the *Mt. Juliet Major Route Plan* completed in 1989.

The Nashville Metropolitan Planning Organization has adopted a *Long-Range Transportation Plan for the Five-County Nashville Region* prepared by Bucher, Willis and Ratliff. The Transportation 2015 draft final report was completed in August 1995. The committed projects submitted by the Tennessee Department of Transportation (TDOT) during 1995, as part of the State Transportation Improvement Plan, recommends that I-40 east be widened from Old Hickory Boulevard to 840 in Wilson County. This corridor was also identified in the *Nashville Metropolitan Area HOV Study* prepared by Gresham, Smith and Partners. The study showed the need to provide two High Occupancy Vehicle (HOV) lanes (one lane in each direction) from Interstate 265 to State Route 26 (U.S. 70).

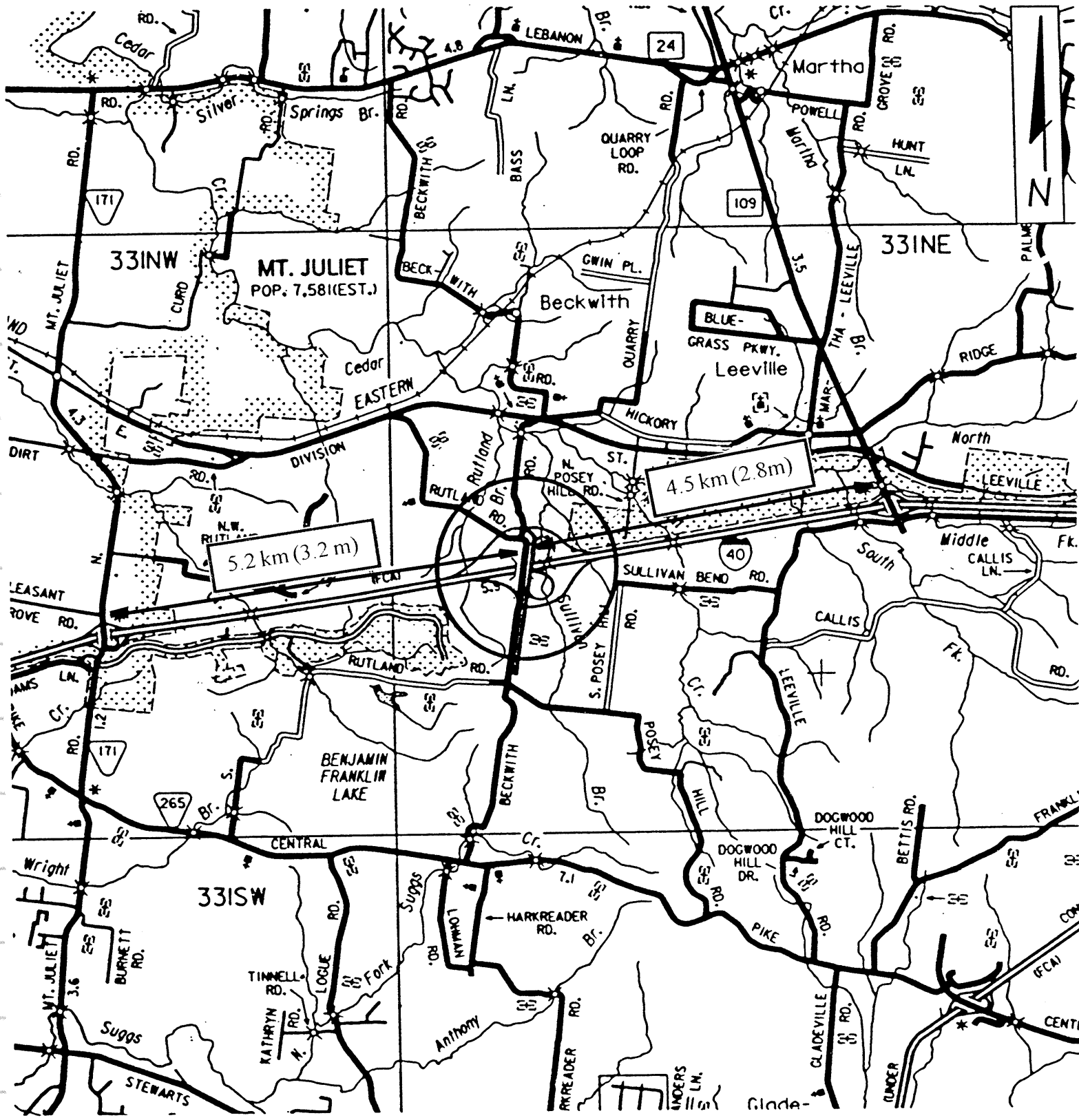


FIGURE 2
PROJECT LOCATION MAP

The Tennessee Department of Transportation Facilities Planning Office is in the planning activities stage of developing an Interchange Modification Study for State Route 109. 840 South is presently open to traffic from I-40 East to Stewarts Ferry Pike in Wilson County and under construction from there to I-24 East in Rutherford County. This project is scheduled for completion in Fall 1996.

Interstate Route 40 is classified as an Urban Interstate on the National Highway System. Beckwith Road (Route 1368) is classified as a Rural Minor Collector. These are the only major highway improvement plans under study for the immediate area at the present time.

Copies of the correspondence are included in the appendix.

CHAPTER 2

Preliminary Planning Data

A. Land Use

The existing land use in the study area is a mixture of agricultural, residential, commercial and light industrial. There is an Industrial Park located east of Mt. Juliet Road and north of Old Lebanon Dirt Road. With the opening of 840 South, this area is expected to experience rapid growth in all areas of land use. Wilson County is within the Nashville Metropolitan Planning Organization Five-County Nashville Region Study Area Boundary. This interchange is included in the Long-Range Transportation Plan.

B. Traffic Served

Interstate Route 40 is presently (1997) two (2) lanes in each direction serving approximately 38800 vehicles with about 24% of this volume being trucks, in the immediate vicinity of the proposed interchange. This volume is expected to be 64800 in the design year (2017). Beckwith Road is currently a two lane highway serving approximately 3000 vehicles with about 2% trucks.

The total daily volume of traffic expected to be served by the proposed interchange in the design year (2017) is 5200 vehicles. The daily volume that would use the interchange if it was in place at the present time (1997) is estimated to be 1800 vehicles.

Present and projected Average Daily Traffic (ADT) volumes and Design Hour Volumes (DHV) are shown in the Appendix.

C. Proposed Improvement

The scope of work for the proposed interchange consists of the following:

Item 1: Constructing a diamond type off ramp in the southwest quadrant for movements from eastbound I-40 to southbound Beckwith Road.

Item 2: Constructing a loop in the southeast quadrant for movements from eastbound I-40 to northbound Beckwith Road. Also in this quadrant is a diamond type on ramp to serve the northbound and southbound Beckwith Road traffic to eastbound I-40.

Item 3: Constructing a diamond type off ramp in the northeast quadrant for movements from westbound I-40 to northbound and southbound Beckwith Road.

Item 4: Constructing a diamond type on ramp in the northwest quadrant for movements from northbound and southbound Beckwith Road to westbound I-40.

Item 5: If operational deficiencies occur in the future, the proposed design allows a loop to be constructed in the northeast quadrant to serve the traffic from northbound Beckwith Road to westbound I-40.

Item 6: Constructing an additional two lanes on Beckwith Road. The existing two lanes will serve southbound traffic while the two proposed lanes will serve northbound traffic on new alignment. This section will transition into the existing two lanes outside the limits of the interchange.

Item 7: The mainline interstate will operate satisfactory for fourteen (14) years at Level of Service (LOS) D maximum. If these 2011 traffic volumes occur, plans will be made for constructing two additional lanes in each direction on I-40. One of these lanes in each direction is expected to be designated as an HOV lane. These lanes are considered to be a separate project, therefore, no related costs have been included in this study.

D. Discussion of Alternatives

The first alternative is to make no change. Access to the area will continue to be indirect, thus resulting in long delays, unnecessary vehicle mileage and gasoline consumption which will increase pollutants emitted to the air and high hidden costs to motorists.

The second alternative, as discussed previously, is to construct a loop ramp in the northeast quadrant, in addition to Items 1,2,3,4 and 6 described on page 5. The loop would allow easier movement for the northbound Beckwith Road to westbound I-40 traffic. The left turn movement at the on ramp in the northwest quadrant would then be removed. This alternative will be considered in the future if traffic demands are warranted and operational problems occur.

CHAPTER 3

Engineering Investigations

A. Traffic Operations

An analysis was made to determine what impacts the proposed interchange would have on the interstate system. The traffic operation analyses contained in the appendices include basic freeway segments and ramp analyses.

The analyses showed the existing two (2) basic lanes in each direction on I-40 will operate satisfactory at LOS D or better for fourteen (14) years (2011). These lanes will not reach failure (LOS F) until beyond the design year (2017). If these traffic volumes occur, plans are to construct two additional mainline lanes. One lane each direction is planned to be designated as an HOV lane. This lane will be a contiguous, peak period lane serving vehicles with two or more occupants, excluding commercial vehicles. The HOV lane will operate during the AM peak in the inside westbound (WB) lane and during the PM peak in the inside eastbound (EB) lane. The percentage of eligible vehicles is 18% in the AM peak and 23% in the PM peak. These percentages were interpolated from the database in *The Nashville Metropolitan Planning Organization HOV Study*. During off peak hours, the HOV lane will serve as a general purpose (GP) lane. With these additional lanes, all proposed interchange improvements will operate at LOS C or better in the design year (2017). The results of the analyses also indicate that the proposed interchange will have no significant impact on the interstate system.

Traffic volumes, merge and diverge points, and the laneage provided within the interchange, together with the level of service analyses for present volumes (1997) and future volumes (2017) are shown in the Appendix.

B. Access Analysis

This study has been undertaken in accordance with the Federal Highway Administration's (FHWA) policy for granting new or modified interstate access. The FHWA policy, as described in FHWA Docket No. 89-23, "Additional Interchanges to the Interstate System" (Federal Register 55, No. 204, October 22, 1990), is provided in the following paragraphs along with comments for consideration.

It is in the national interest to maintain the Interstate System to provide the highest level of service in terms of safety and mobility. Adequate control of access is critical to provide such service. Therefore, new or revised access points to the existing interstate system will be considered for approval only if:

1. It is demonstrated that the existing interchanges and/or local roads and streets in the corridor can neither provide the necessary access nor be improved to satisfactorily accommodate the design year traffic demands while at the same time providing the access intended by the proposal.

The Mt. Juliet Road Interchange is experiencing operational problems presently. With the opening of 840 South and the anticipated increase in land use, these problems are going to increase. The Beckwith Road Interchange will provide much needed relief.

2. All reasonable alternatives for design options, location and transportation system management type improvements (such as ramp metering, mass transit, and HOV facilities) have been assessed and provided for as currently justified, or provisions are included for accommodating such facilities if a future need is identified.

While in the early planning stages, several design options were developed. These alternatives were reviewed and evaluated in meetings with representatives from TDOT's Design Division and TDOT's Planning Division. The proposed design, with the future loop consideration, was the preferred concept. HOV lanes are planned to be constructed in both directions during the widening of I-40, when necessary. This lane will be a contiguous, peak period lane serving vehicles with two or more occupants, excluding commercial vehicles. During the non-peak hours, the HOV lane will function as a general purpose lane available to all vehicles.

3. The proposed access point does not have a significant adverse impact on the safety and operation of the interstate facility based on analysis of current and future traffic. The operational analysis for existing conditions shall, particularly in urbanized areas, include an analysis of sections of interstate to and including at least the first adjacent existing or proposed interchange on either side. Crossroads and other roads and streets shall be included in the analysis to the extent necessary to assure their ability to collect and distribute traffic to and from the interchange with new or revised access point.

An operational analysis of current and future traffic was made for sections of the interstate, all ramps and ramp termini within the limits of the interchange area. The adjacent existing interchanges, in relation to the location of the subject interchange, are outside the influence of weaving. The S.R. 171 (Mt. Juliet Rd.) interchange is located 5.2 km (3.2 miles) east and the S.R. 109 interchange is 4.5 km (2.8 miles) west. Based on these observations and the results of the capacity analyses, there will not be any significant adverse impact on the safety and operation of the interstate facility.

4. The proposed access connects to a public road only and will provide for all turning movements. Less than "full interchanges" for special purpose access for transit vehicles, for HOV's or into park and ride lots may be considered on a case-by-case basis. The proposed access will be designed to meet or exceed current standards for Federal-Aid projects on the Interstate system.

This proposal is a "Diamond-Type" interchange with a loop in the southeast quadrant. The design allows for a loop to be constructed in the northeast quadrant if operational deficiencies occur. This design will provide for all traffic movements. The proposed interchange design will meet or exceed all American Association of State Highway and Transportation Officials (AASHTO) criteria.

5. The proposal considers and is consistent with local and regional land use and transportation plans. In areas where the potential exists for future multiple interchange additions all requests for new or revised access are supported by a comprehensive Interstate network study with recommendations that address all proposed and desired access within the context of a long-term plan.

The proposal is consistent with the City of Mount Juliet's Major Route Plan as well as TDOT's HOV lane study for the I-40 corridor. In addition, Wilson County is now part of the Nashville Metropolitan Planning Organization (MPO) study area. The improvements discussed in this study are projects identified in the *Long-Range Transportation Plan for the Five-County Nashville Region* which has been adopted by the MPO.

6. The request for a new or revised access generated by new or expanded development demonstrates appropriate coordination between the development and related or otherwise required transportation system improvements.

The primary objectives of the proposed interchange at I-40 and Beckwith Road are improved access to the Mount Juliet Industrial Park and residential areas and to provide relief to the interchange at State Route 171. According to this study, the proposed design will meet each objective.

Cost

The total estimated project cost for the interchange is \$5,555,000. This estimate includes construction, right-of-way, utility and preliminary engineering costs. An estimated cost breakdown for the interchange is as follows:

Clearing and Grubbing	\$ 20,000
Earthwork	\$1,115,000
Pavement Removal	\$ 15,000
Drainage (includes Erosion Control) Structures	\$ 270,000
Railroad Crossing or Separation	\$1,240,000
Paving	\$ N/A
Retaining Walls	\$ 805,000
Maintenance of Traffic	\$ N/A
Topsoil	\$ 35,000
Seeding	\$ 20,000
Sodding	\$ 15,000
Signing	\$ 5,000
Signalization	\$ 35,000
Fence	\$ N/A
Guardrail	\$ 25,000
Rip-Rap or Slope Protection	\$ 65,000
Other Construction Items (8.5%)	\$ 15,000
Mobilization	\$ 330,000
Construction Cost	<u>\$ 170,000</u>
10% Engineering and Contingencies	\$4,180,000
Total Construction Cost	<u>\$ 420,000</u>
10% Preliminary Engineering	\$4,600,000
TOTAL ENGINEERING AND CONSTRUCTION	<u>\$ 420,000</u>
	\$5,020,000
Right-of-Way	
Land Required - 1 (40 Ac)	\$ 350,350
Improvements	\$ 64,350
Damages	\$ 0
Incidentals (2 Tracts)	\$ 20,000
Residential Relocation	\$ 10,300
TOTAL RIGHT-OF-WAY COST	<u>\$ 445,000</u>
Utility Cost	\$ 90,000
TOTAL PROJECT COST	<u>\$5,555,000</u>

CHAPTER 4

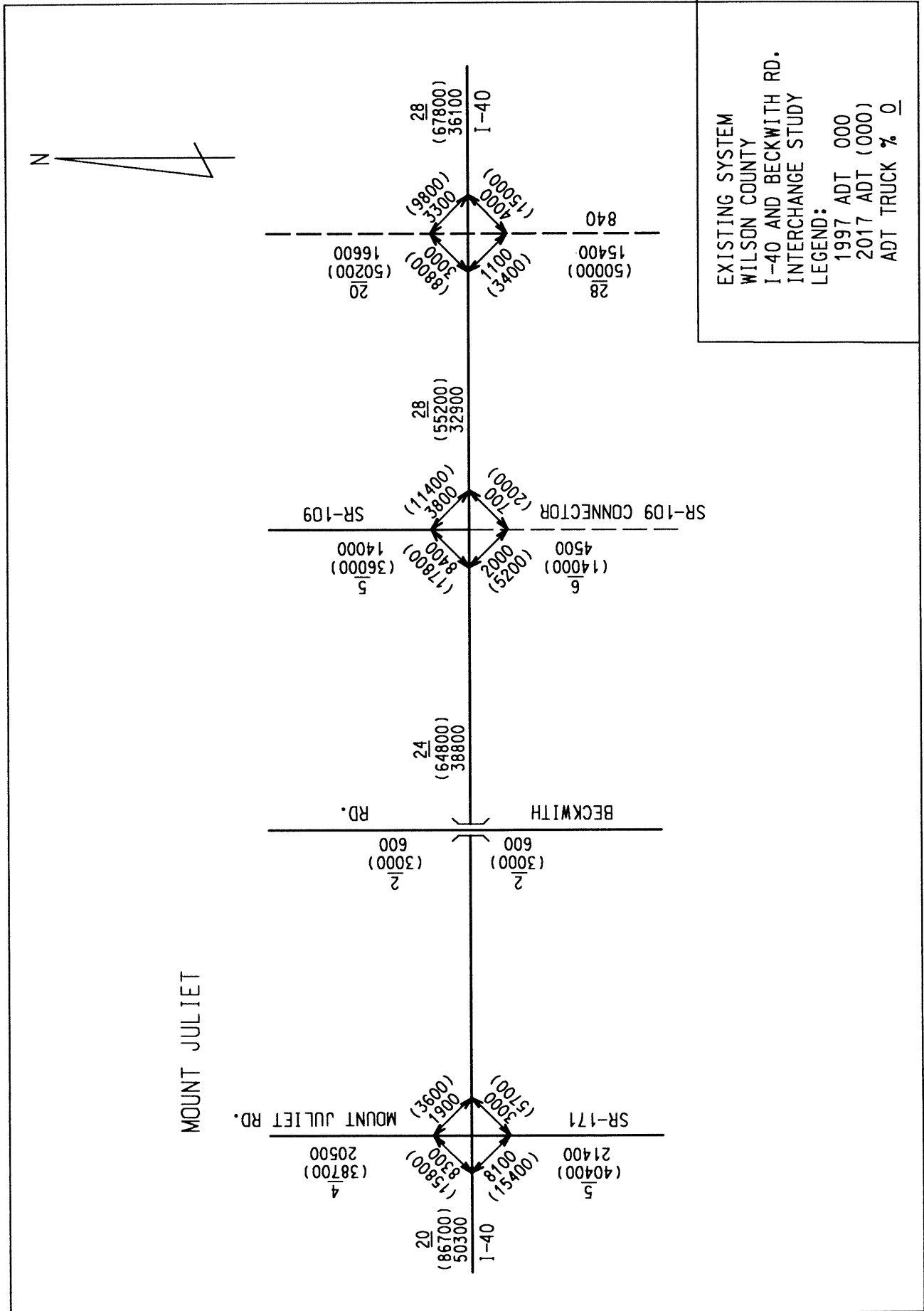
Summary and Conclusions

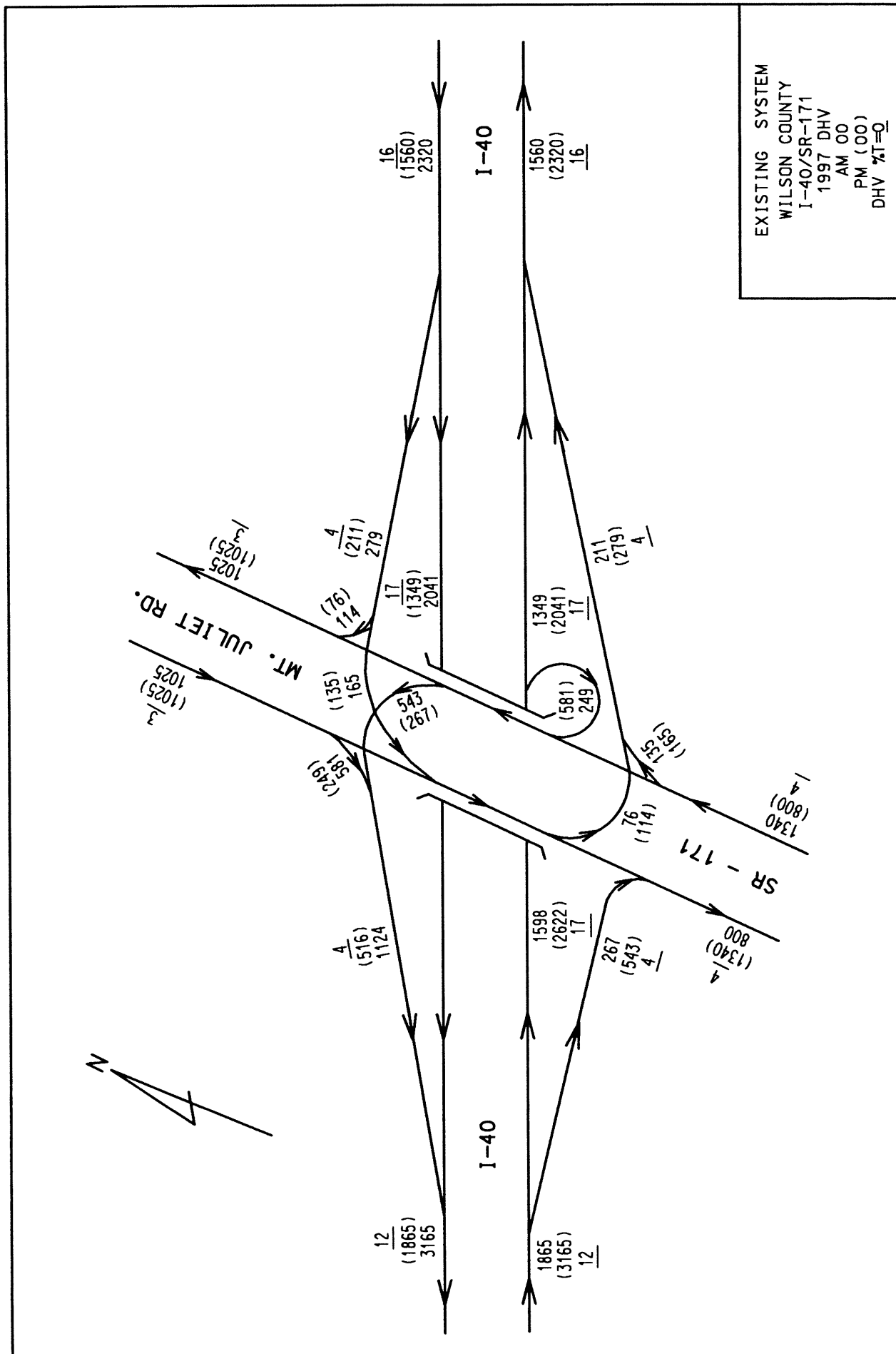
The preceding study was conducted to evaluate the impacts of constructing a new interchange at I-40 and Beckwith Road in Mount Juliet. A summary of the findings and conclusions reached as a result of the interchange justification study are as follows:

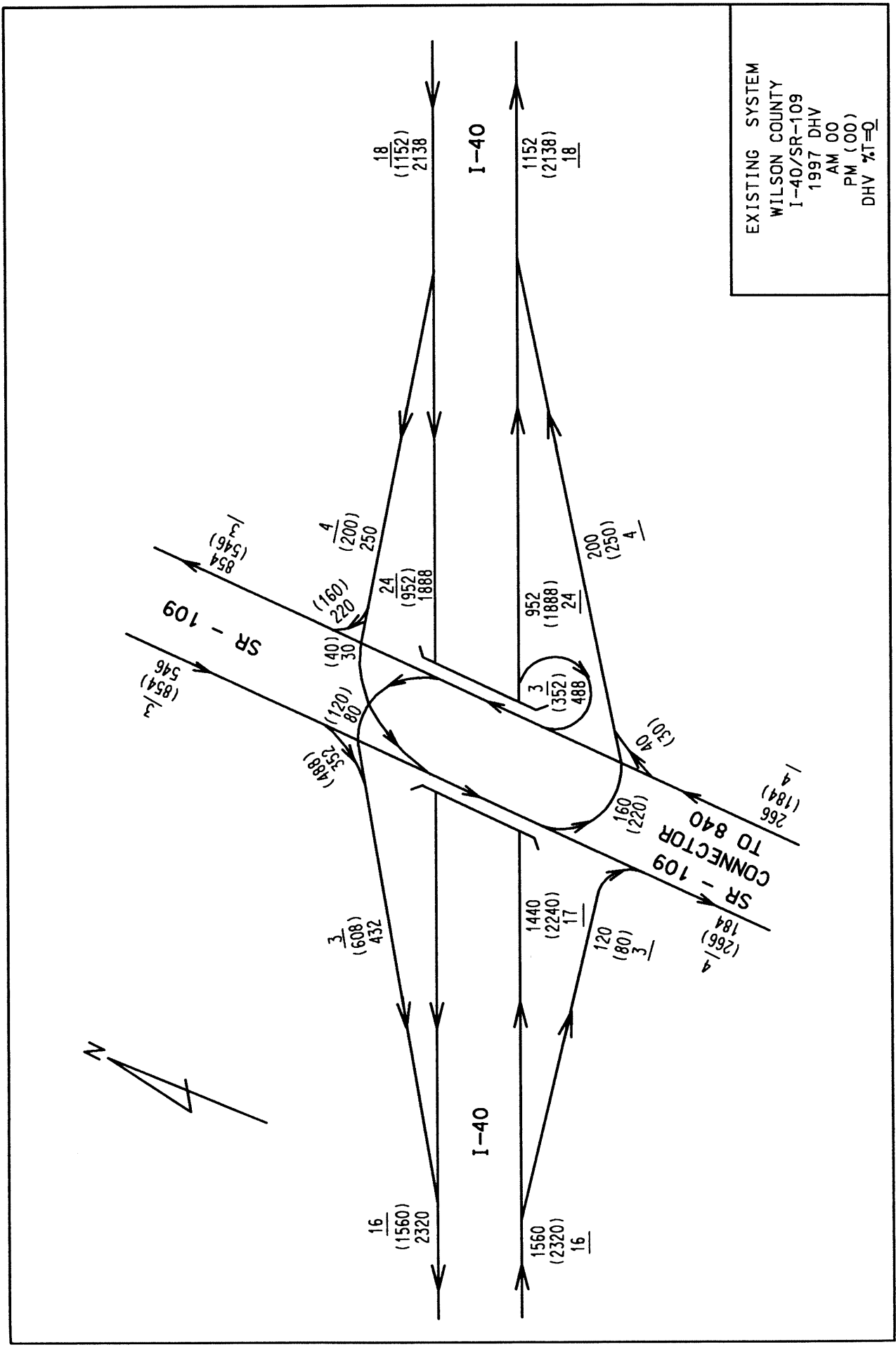
1. The proposed interchange will adequately serve both the industrial and residential areas of Wilson County.
2. The analyses revealed that the proposal will have a service life of fourteen (14) years before any additional mainline improvements are necessary. This will result in better access through the corridor with reduced congestion at the adjoining interchange and a reduction in emissions.
3. The proposed interchange is consistent with the overall land use and transportation objectives of the local governments having jurisdiction over the area.
4. The proposed access point does not have a significant adverse impact upon the operation of the interstate system.

APPENDIX

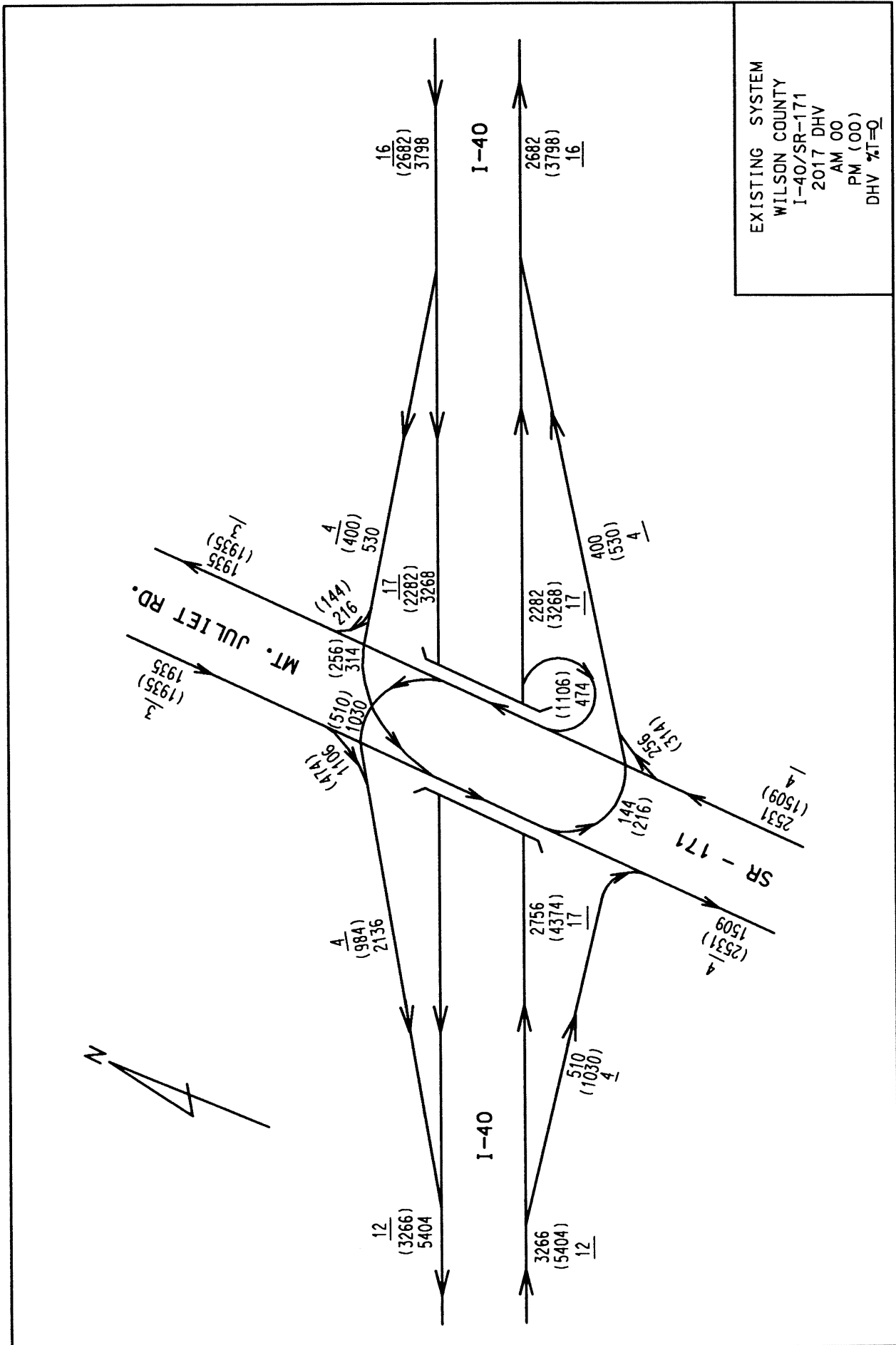
SECTION 1
A-1 to A-5

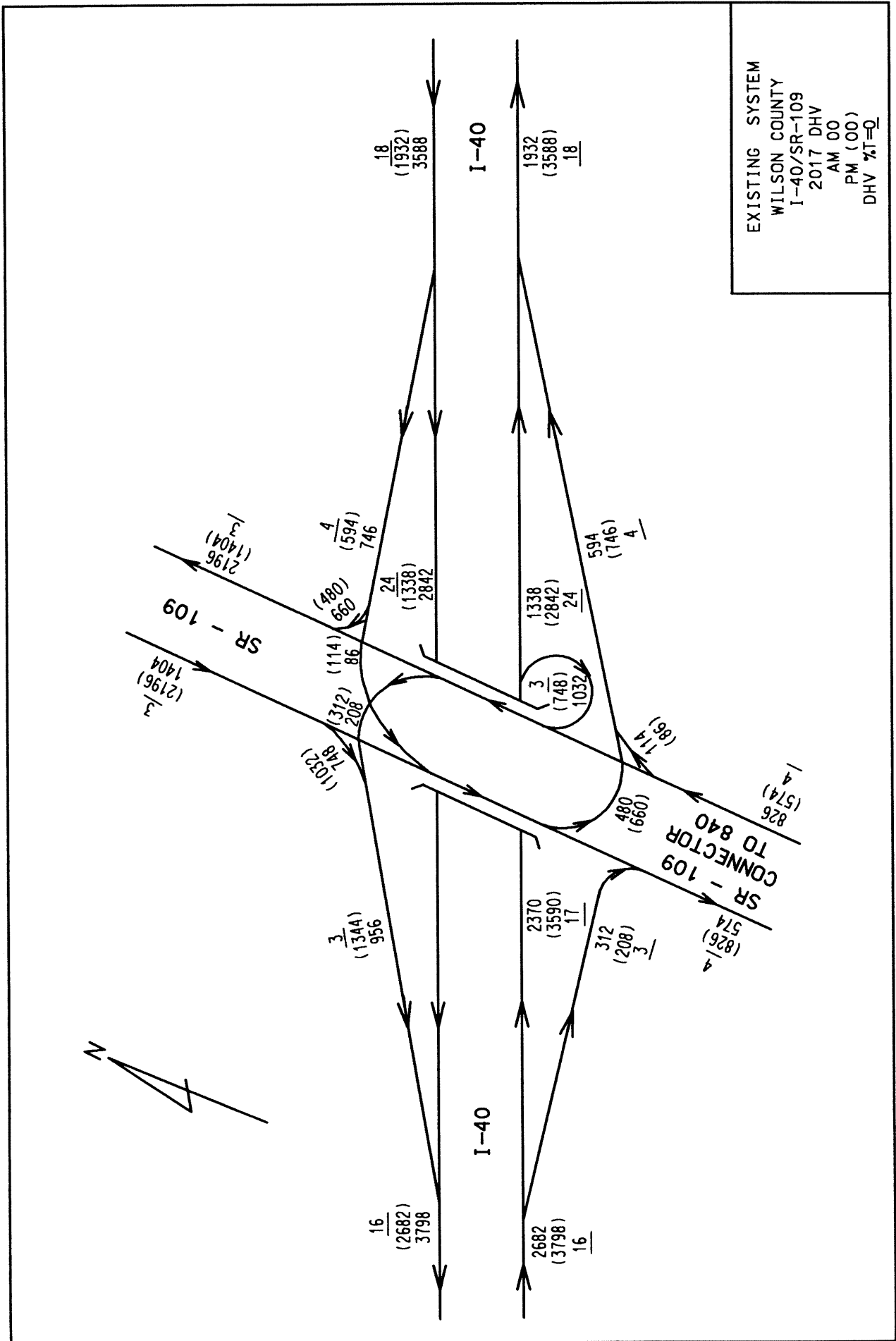




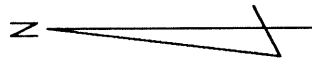


EXISTING SYSTEM
 WILSON COUNTY
 I-40/SR-109
 1997 DHV
 AM 00
 PM (00)
 DHV %T=0

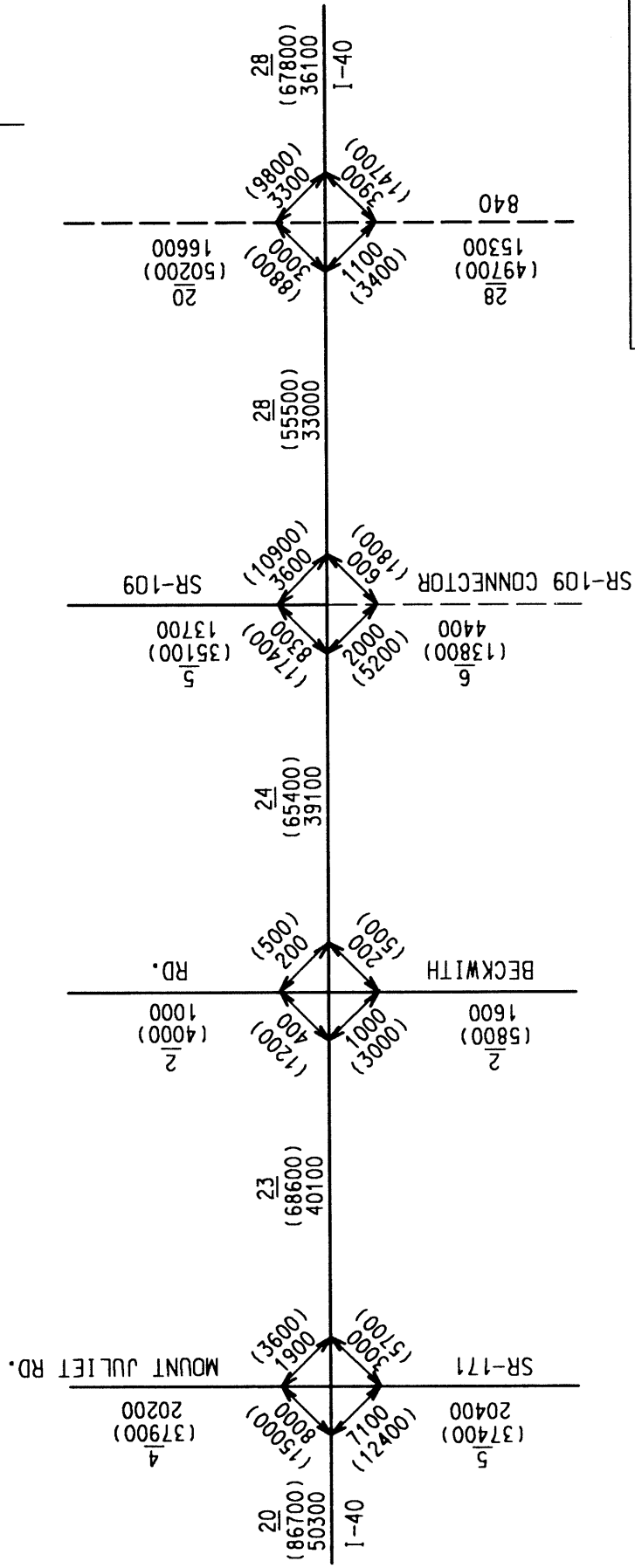




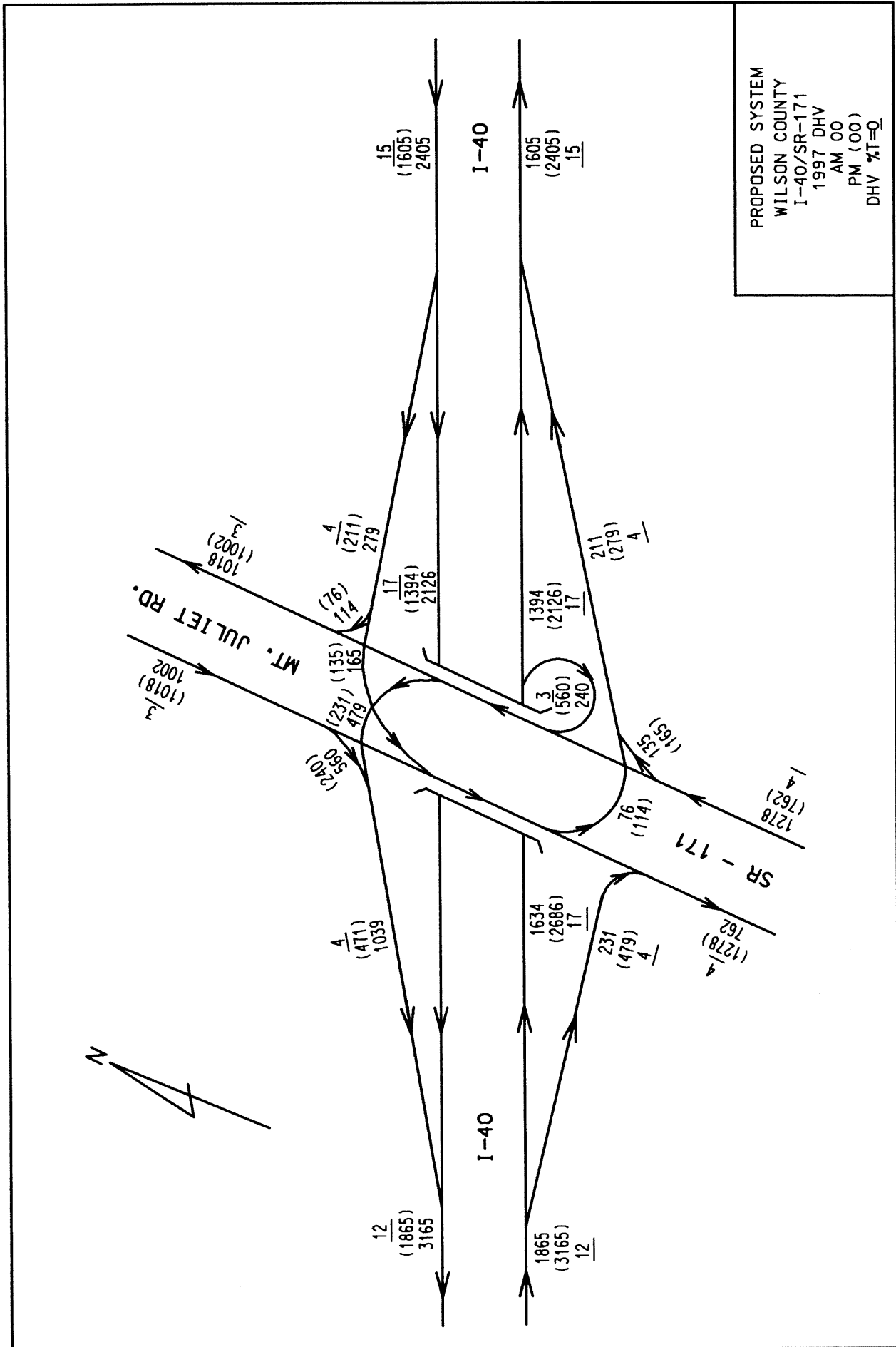
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A-6 to A-15

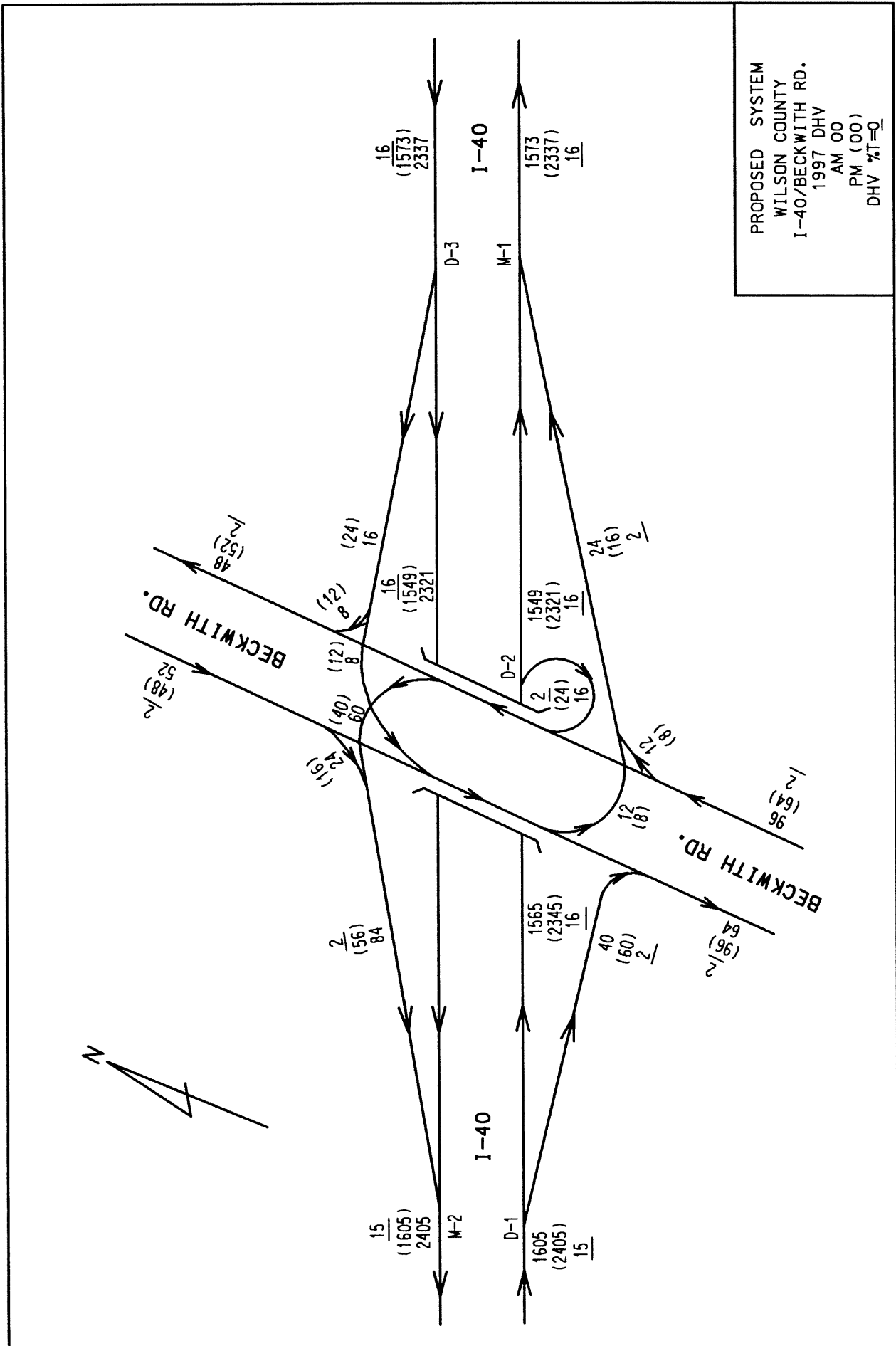


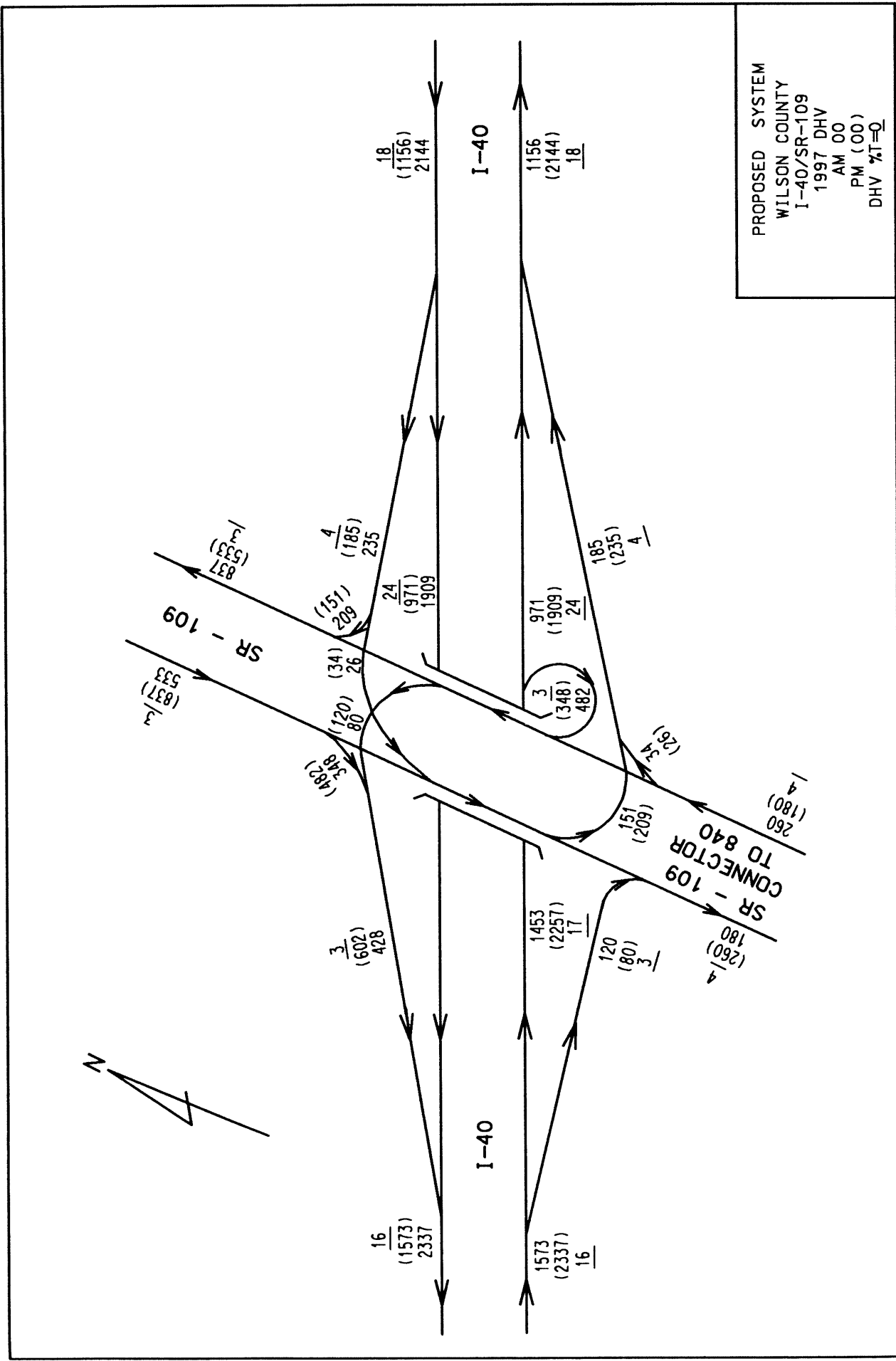
MOUNT JULIET

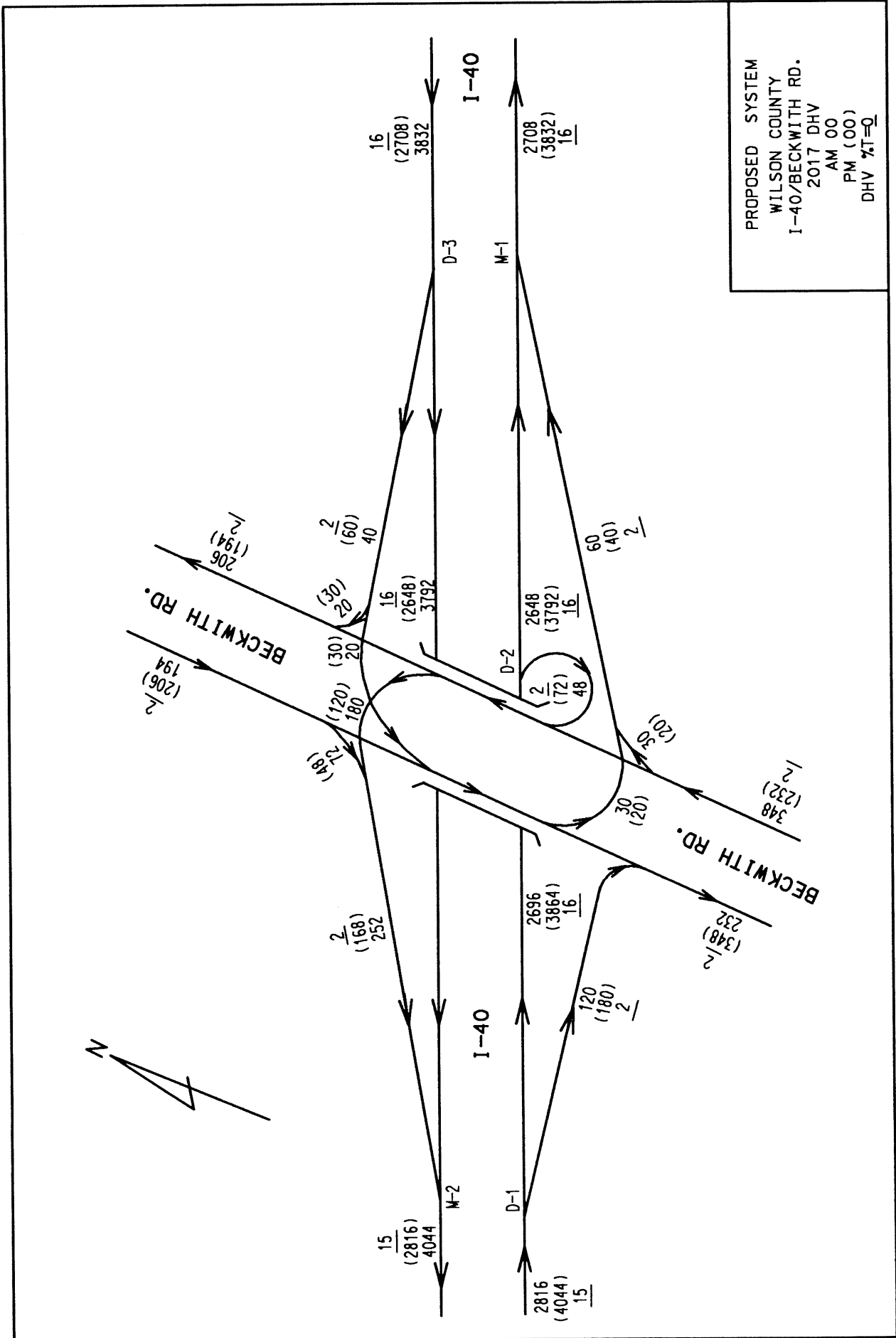


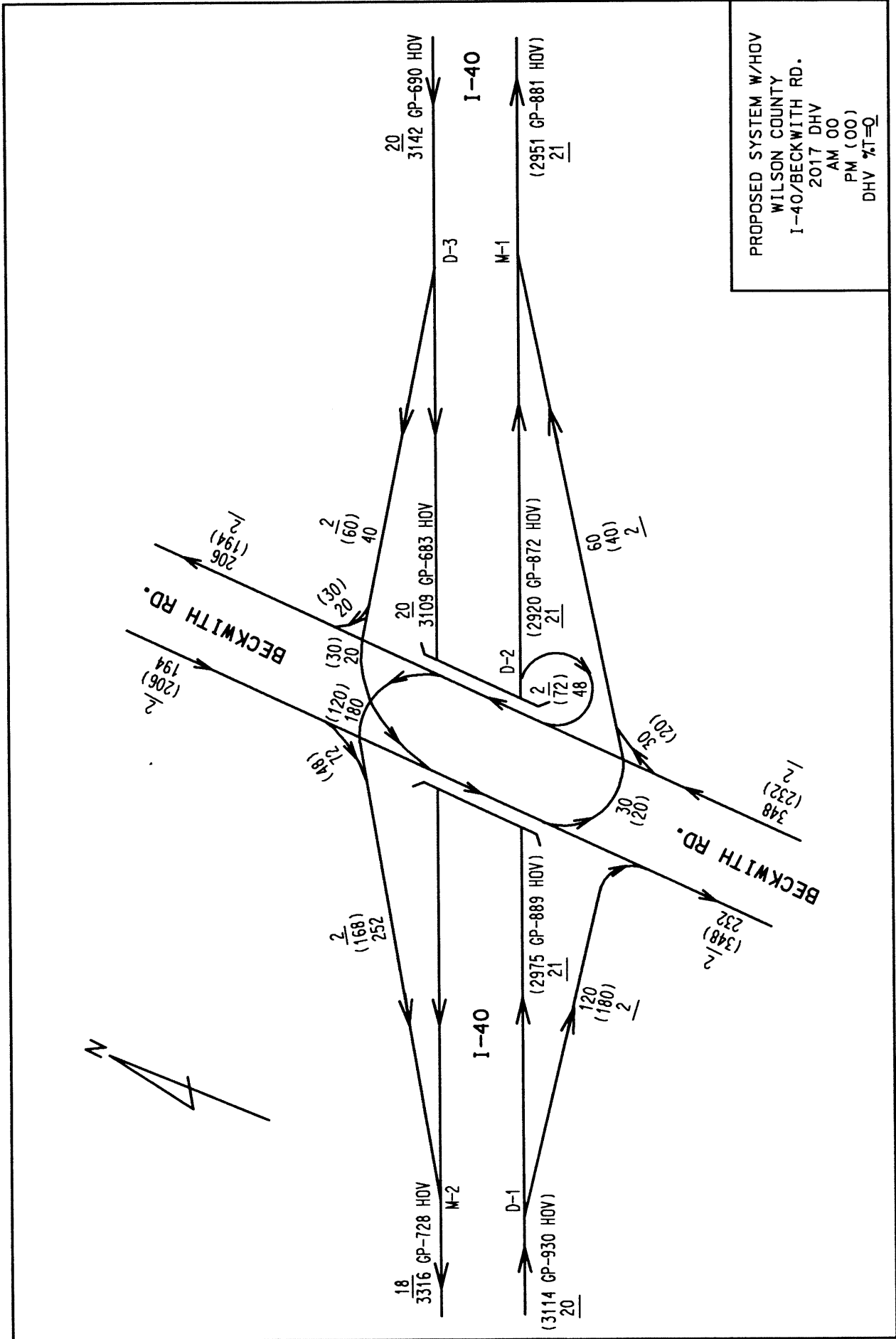
PROPOSED SYSTEM
 WILSON COUNTY
 I-40 AND BECKWITH RD.
 INTERCHANGE STUDY
 LEGEND:
 1997 ADT 000
 2017 ADT (000)
 ADT TRUCK % 0











PROPOSED SYSTEM W/HOV
WILSON COUNTY
I-40/BECKWITH RD.
2017 DHV
AM 00
PM 00
DHV %T=0



^SERVICE LIFE VOLUMES - AM
I-40/BECKWITH ROAD

YEAR	PROPOSED INTERCHANGE							^RAMP LOCATION						
	ML1	ML2	ML3	ML4	ML5	ML6	ML7	D1	D2	M1	D3	M2		
1997	1605	1565	1549	1573	2337	2321	2405	40	16	24	16	84		
1998	1666	1622	1604	1630	2412	2395	2487	44	18	26	17	92		
1999	1726	1678	1659	1687	2487	2468	2569	48	19	28	18	101		
2000	1787	1735	1714	1743	2561	2542	2651	52	21	29	20	109		
2001	1847	1791	1769	1800	2636	2615	2733	56	22	31	21	118		
2002	1908	1848	1824	1857	2711	2689	2815	60	24	33	22	126		
2003	1968	1904	1879	1914	2786	2762	2897	64	26	35	23	134		
2004	2029	1961	1934	1970	2860	2836	2979	68	27	37	24	143		
2005	2089	2017	1989	2027	2935	2909	3061	72	29	38	26	151		
2006	2150	2074	2044	2084	3010	2983	3143	76	30	40	27	160		
2007	2211	2131	2099	2141	3085	3057	3225	80	32	42	28	168		
2008	2271	2187	2153	2197	3159	3130	3306	84	34	44	29	176		
2009	2332	2244	2208	2254	3234	3204	3388	88	35	46	30	185		
2010	2392	2300	2263	2311	3309	3277	3470	92	37	47	32	193		
2011	2453	2357	2318	2368	3384	3351	3552	96	38	49	33	202		
2012	2513	2413	2373	2424	3458	3424	3634	100	40	51	34	210		
2013	2574	2470	2428	2481	3533	3498	3716	104	42	53	35	218		
2014	2634	2526	2483	2538	3608	3571	3798	108	43	55	36	227		
2015	2695	2583	2538	2595	3683	3645	3880	112	45	56	38	235		
2016	2755	2639	2593	2651	3757	3718	3962	116	46	58	39	244		
2017	2816	2696	2648	2708	3832	3792	4044	120	48	60	40	252		
	ML1	ML2	ML3	ML4	ML5	ML6	ML7	D1	D2	M1	D3	M2		

TDOT

DATE: 04-08-96

^SERVICE LIFE VOLUMES - PM
I-40/BECKWITH ROAD

YEAR	PROPOSED INTERCHANGE							^RAMP LOCATION						
	ML1	ML2	ML3	ML4	ML5	ML6	ML7	D1	D2	M1	D3	M2		
1997	2405	2345	2321	2337	1573	1549	1605	60	24	16	24	56		
1998	2487	2421	2395	2412	1630	1604	1666	66	26	17	26	62		
1999	2569	2497	2468	2487	1687	1659	1726	72	29	18	28	67		
2000	2651	2573	2542	2561	1743	1714	1787	78	31	20	29	73		
2001	2733	2649	2615	2636	1800	1769	1847	84	34	21	31	78		
2002	2815	2725	2689	2711	1857	1824	1908	90	36	22	33	84		
2003	2897	2801	2762	2786	1914	1879	1968	96	38	23	35	90		
2004	2979	2877	2836	2860	1970	1934	2029	102	41	24	37	95		
2005	3061	2953	2909	2935	2027	1989	2089	108	43	26	38	101		
2006	3143	3029	2983	3010	2084	2044	2150	114	46	27	40	106		
2007	3225	3105	3057	3085	2141	2099	2211	120	48	28	42	112		
2008	3306	3180	3130	3159	2197	2153	2271	126	50	29	44	118		
2009	3388	3256	3204	3234	2254	2208	2332	132	53	30	46	123		
2010	3470	3332	3277	3309	2311	2263	2392	138	55	32	47	129		
2011	3552	3408	3351	3384	2368	2318	2453	144	58	33	49	134		
2012	3634	3484	3424	3458	2424	2373	2513	150	60	34	51	140		
2013	3716	3560	3498	3533	2481	2428	2574	156	62	35	53	146		
2014	3798	3636	3571	3608	2538	2483	2634	162	65	36	55	151		
2015	3880	3712	3645	3683	2595	2538	2695	168	67	38	56	157		
2016	3962	3788	3718	3757	2651	2593	2755	174	70	39	58	162		
2017	4044	3864	3792	3832	2708	2648	2816	180	72	40	60	168		
	ML1	ML2	ML3	ML4	ML5	ML6	ML7	D1	D2	M1	D3	M2		

TDOT

DATE: 04-08-96

SECTION 11

David Waynick
Mayor

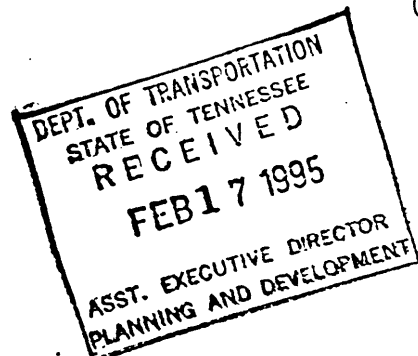
Michael Sowell
Vice-Mayor

Danny C. Farmer
City Manager

City of Mt. Juliet

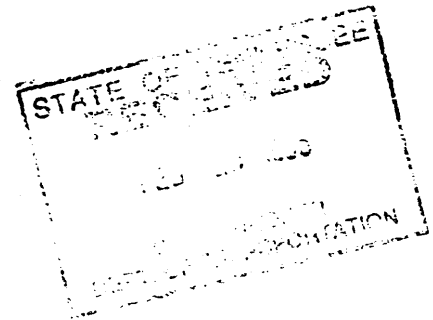
Commissioners
Ed Binkley
Frank Henderson
F. M. Weston

February 13, 1995



Comm (P4D)
4779 Wm

Mr. Bruce Saltsman, Commissioner
Tennessee Department of Transportation
7th Floor, James K. Polk Building
505 Deadrick Street
Nashville, TN 37243-0340



Dear Commissioner Saltsman,

It is my understanding that a functional plan for a new interchange on I-40, at Beckwith Road in Wilson County, has recently been completed by TDOT. Earlier I requested the development of this plan and I am very grateful for TDOT's quick response to that request.

As Mayor of Mt. Juliet I am very interested in seeing this plan through the implementation. I would very much appreciate if the department would take the lead in preparing an interchange justification study for submittal to the Federal Highway Administration.

Your support with this request will be greatly appreciated. Please do not hesitate to call me at 885-5707 if I can assist in anyway.

Respectfully,

A handwritten signature in black ink, appearing to be "DW".

David Waynick, Mayor
City of Mt. Juliet

DW/fp

09/08/95

**NASHVILLE METROPOLITAN PLANNING
ORGANIZATION**

TRANSPORTATION 2015

**A Long-Range Transportation Plan for the Five-County Nashville
Region**

DRAFT FINAL REPORT

AUGUST 1995

 **BUCHER, WILLIS & RATLIFF**
ENGINEERS ■ PLANNERS ■ ARCHITECTS

NASHVILLE METROPOLITAN AREA

Long Range Transportation Plan

Corridors. Additionally, less transit service is provided in the Southeast Corridor than these two corridors. While LRT may be a preferred future travel mode, it was the consensus of the Transportation Coordination Committee (TCC) to recommend pursuit of bus oriented transit service as part of this plan and then monitor demand for transit within each corridor prior to further consideration of LRT.

Commuter rail opportunities are currently being considered as part of a separate study. This study has focused on radial corridors in which rail lines are present. The corridors ranked as follows in terms of preliminary patronage estimates: the Southeast was highest followed by the East and Northeast Corridors, and then by the South and Southwest Corridors. Commuter rail has the characteristics which could potentially serve the Nashville area. It requires less density than does LRT, however it does require a large population base with access to the rail stations and who have a destination in the Nashville CBD or along the rail line.

HOV Lane Construction

A High Occupancy Vehicle (HOV) lane is defined as a lane which is designated for use by vehicles which carry more than one person. Carpools, vanpools and buses are considered as HOVs. The *Nashville Metropolitan Area HOV Study* is being completed by TDOT and addresses construction of HOV facilities in the Nashville area. The draft recommendations include providing HOV lanes on radial corridors with transitions to general purpose lanes on freeway segments with physical constraints.

The study recommended the following improvements:

I-24 East -- Widening I-24 to provide two HOV lanes from the I-40 interchange to the US-231 interchange. HOV lane widening from Hickory Hollow Parkway to Sam Ridley Boulevard is currently programmed as a TDOT project.

I-40 East -- Widening to provide two HOV lanes from I-265 to US-70. The TDOT widening project currently programmed will provide the HOV lanes from Old Hickory Boulevard to just east of Mt. Juliet Road.

I-40 West -- Widening for HOV lanes are recommended between I-265 to US-70 near Bellevue, except for the I-40/I-440 interchange area.

I-65 North -- Widening I-65 to provide two HOV lanes from I-265 to State Route 257

I-65 South -- Widen I-65 to provide two HOV lanes from I-265 to Harding Place. The segment from Harding Place to Concord Road is an existing HOV lane segment. The future programmed widening of I-65 from Concord Road to State Route 96 is to include HOV lanes.

Travel demand estimates produced for the LRTP predict the highest carpool/vanpool HOV lane use in the Northeast, Southeast and South Corridors, in that order.

NASHVILLE METROPOLITAN AREA

Long Range Transportation Plan

The focus of the plan is to first, preserve and maintain the existing transportation system. This LRTP provides a comprehensive strategy to examine corridor-wide travel deficiencies and deficiencies of travel between corridors. Projects and programs which improve the efficiency of the existing system as well as funds for operations, maintenance, resurfacing, and reconstructing existing roadways receive the highest priority.

A second focus is to identify and preserve future travel corridors. In certain cases, new transportation facilities are shown to relieve projected traffic conditions on existing travel routes. Projects were tested in the regional travel model as described in Section 6 of this plan.

The following roadway recommendations are included for implementation during the 20-year planning period. The first project priority are in the current Transportation Improvement Program (TIP). This list includes projects recently submitted by TDOT during 1995 as part of the State Transportation Improvement Plan. The committed projects which involve capacity improvement are listed below:

- Almaville Road (SR-102) (Seminary Road to I-24 widening)
- Ashland City Highway (SR-12) (County Line to Clarksville Pike widening)
- Bell Road (Murfreesboro Pike to Smith Springs Road; Mt. View to Murfreesboro Pike)
- Brick Church Pike (Trinity Lane to Briley Parkway widening)
- Concord Road (I-65 to Wilson Pike)
- Briley Parkway (construct new lane from I-40 to I-65)
- Briley Parkway (Cumberland River to Opryland Interchange widening)
- Conference Drive (Gallatin Pike to Long Hollow Pike widening)
- Charlotte Avenue (23rd Street to 32nd Avenue reconstruct to five lanes)
- Demonbruen Street Viaduct and Bridge widening (12th Avenue to 8th Avenue)
- Enon Springs Road (US 41/70S & Stewarts Creek Bridge in Smyrna)
- Freehill Road (extension to US 31 East)
- Harding Place (Sidco Drive to Timberhill Drive widening)
- Harding Place Extension (Ezell Road to Murfreesboro Pike)
- Hillsboro Road (widening and reconstruction Harding Place to Franklin Pike)

NASHVILLE METROPOLITAN AREA

Long Range Transportation Plan

- Main Street (Lebanon) (Widen from Barton's Creek to Baddour Parkway)
- Moores Lane (Liberty Lane to Wilson Pike new roadway)
- Lebanon Pike (Andrew Jackson Parkway to east of Cedar Creek in Mt. Juliet widening)
- Nonaville Road (Wilson/Davidson line to Saundersville Road improvement)
- Shelby Street Bridge/McGavock (8th to 4th and bridge widening)
- Nonaville Road (improve roadway)
- Smith Springs Road (old Murfreesboro Pike to Bell Road widening)
- SR 96 (I-24E to I-65S widening)
- SR 99 Widening (US-41A to County Road)
- SR 109 Extension (Wilson County)
- SR 109 West Bypass (Gallatin Pike)
- SR 258 (White House By-Pass)
- Trinity Lane (Clarksville Pike to I-65 widening)
- 3rd Avenue North (Gay Street to Hume Street)
- US 70 (SR 109 to Lebanon widening)
- US 231 (Compton Road to Walter Hill widening)
- I-24 East (Hickory Hollow to SR 840 widening)
- I-40 East (Old Hickory Blvd. to SR 840 in Wilson County widening)
- I-65 North (Two Mile Pike to US 31 W. at Millersville in Sumner County widening)
- I-65 South (Widen to SR 96)
- SR 840 (I-40 west of Lebanon to west of I-65)

NASHVILLE METROPOLITAN AREA

Long Range Transportation Plan

- Woodmont Boulevard. Widen to three lanes from Franklin Road to West End/Harding Road.
- Old Hickory Boulevard. Widen to five lanes from west of Franklin Road to Bellevue.
- SR 840 Segment from I-65S to I-40W. Construct new four lane freeway.

Access Projects

- I-40/Lebanon By-pass Interchange and construction of by-pass roadway segments.
- I-40/Beckwith Road Interchange and construction of by-pass road segments.
- CBD Loop Interchange improvements.
- I-24 at Southeast Arterial.
- I-40 at Charlotte Pike.
- Indian Lake (Hendersonville). Construct road extension.
- Improve Imperial Boulevard (Hendersonville). Extend roadway to Saunders Ferry Road.
- US-31E at Freehill new interchange.

ACTION PLAN

1. Develop and prioritize projects to be included in TIP.
2. Complete sub area studies and incorporate results into future updates and amendments.
3. Further address transportation capacity needs and design in the CBD loop and along radial freeways between the CBD and Briley Parkway. Transportation capacity constraints were identified and would be partially mitigated by CMS solutions proposed in this LRTP. However, traffic congestion deficiencies are projected in this area for the year 2015.

**MPO EXECUTIVE BOARD
PRESENTATION**

Mt. Juliet Corridor Study

MARCH, 15 1995

Prepared For:

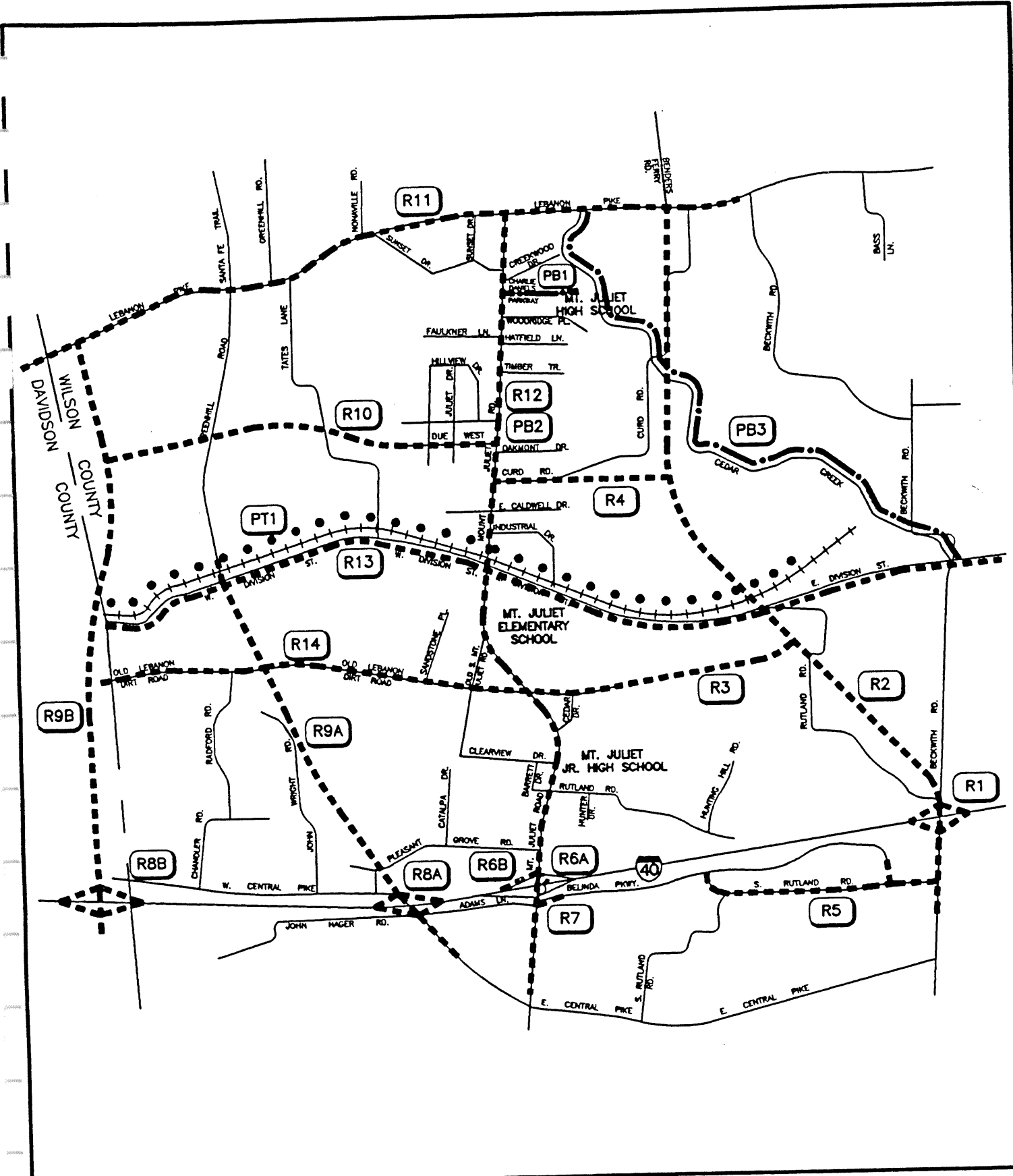
**CITY OF MT. JULIET
and
NASHVILLE AREA
METROPOLITAN PLANNING ORGANIZATION**

Prepared By:

**RUST ENVIRONMENT &
INFRASTRUCTURE**

In Association With

 **RPM & ASSOCIATES**



ALTERNATE IMPROVEMENT PROJECTS
 MT. JULIET ROAD CORRIDOR



No Scale

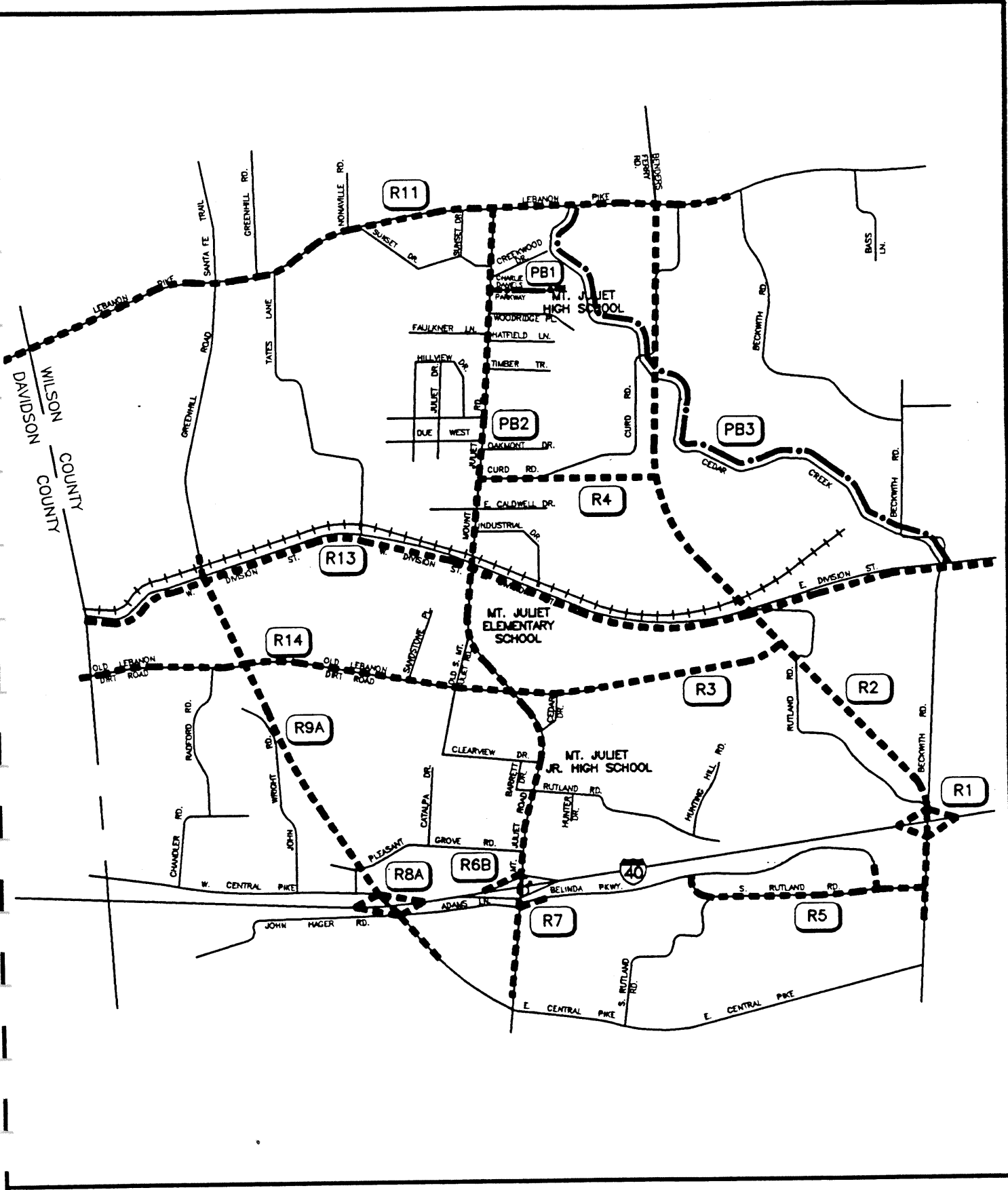
RUST ENVIRONMENT & INFRASTRUCTURE



**ALTERNATIVE IMPROVMENTS STRATEGIES CONSIDERED
MT. JULIET CORRIDOR STUDY**

ROADWAYS (R)

- R1 Construct a new interchange at I-40 and Beckwith Road. This interchange is needed to reduce the traffic demand on Mt. Juliet Road. Also, the Beckwith Road interchange will provide improved access to the industrial park located east of Mt. Juliet Road and north of Old Lebanon Dirt Road. This interchange was previously recommended in the Mt. Juliet Major Route Plan completed in 1989.
- R2 Construct a new north/south roadway from the new interchange at Beckwith Road to Lebanon Pike. The roadway should be constructed as a two lane arterial with turning lanes at intersections. At its northern terminus, it is desirable for this new roadway to be continuous with Benders Ferry Road. Therefore, the roadway should either intersect Lebanon Pike directly opposite Benders Ferry Road, or Benders Ferry Road should be realigned so that it intersects Lebanon Pike opposite the new roadway.
- R3 Realign Old Lebanon Dirt Road to intersect the new north/south roadway (R2) at an approximate 90 degree angle. This will enhance east/west access between the new roadway and Mt. Juliet Road.
- R4 Realign, improve, and extend Curd Road to intersect the new north/south roadway (R2) at an approximate 90 degree angle. Curd Road should be widened to provide standard 12 feet travel lanes. The Curd Road extension will result in improved east/west access in the northern portion of the study area.
- R5 Extend and improve Rutland Road to intersect Beckwith Road south of the new interchange at I-40.
- R6A Modify the Mt. Juliet Road interchange to provide a loop ramp in the northeast quadrant. This improvement is needed to accommodate the heavy peak period left turn movement from northbound Mt. Juliet Road onto the westbound I-40 on-ramp.
- R6B Modify the Mt. Juliet Road interchange to provide a two lane on-ramp for westbound traffic. Northbound Mt. Juliet Road should also be widened to provide a dual left turn lane at the on-ramp. This is an alternative improvement that could be implemented instead of R6A.



DRAFT CONCEPT PLAN
 MT. JULIET ROAD CORRIDOR



No Scale

RUST ENVIRONMENT & INFRASTRUCTURE



**RECOMMENDED IMPROVEMENT PROGRAM
MT. JULIET CORRIDOR STUDY**

- R1 Construct a new interchange at I-40 and Beckwith Road. This interchange was previously recommended in the Mt. Juliet Major Route Plan completed in 1989.
- R2 Construct a new north/south roadway from the new interchange at Beckwith Road to Lebanon Pike. The roadway should be constructed as a two lane arterial with turning lanes at intersections. At its northern terminus, it is desirable for this new roadway to be continuous with Benders Ferry Road.
- R3 Realign Old Lebanon Dirt Road to intersect the new north/south roadway (R2) at an approximate 90 degree angle.
- R4 Realign, improve, and extend Curd Road to intersect the new north/south roadway (R2) at an approximate 90 degree angle. Curd Road should be widened to provide standard 12 feet travel lanes.
- R5 Extend and improve Rutland Road to intersect Beckwith Road south of the new interchange at I-40.
- R6B Modify the Mt. Juliet Road interchange to provide a two lane on-ramp for westbound traffic. Northbound Mt. Juliet Road should also be widened to provide a two lane left turn lane at the on-ramp.
- R7 Realign Belinda Parkway to intersect Mt. Juliet Road opposite Adams Lane. This new intersection should be signalized.
- R8A Construct a new interchange on I-40 at Central Pike.
- R9A Construct a new north/south roadway from the new interchange at Central Pike to West Division Street. The roadway should be constructed as a two lane arterial with turning lanes at intersections.
- R11 Widen Lebanon Pike to a five lane cross-section. The improvement is already planned by TDOT and funded for construction.
- R13 Widen Division Street to provide standard 12 feet lanes and turning lanes at intersections.
- R14 Widen Old Lebanon Dirt Road to provide standard 12 feet lanes and turning lanes at intersections.
- PB1 Construct sidewalks on each side of Charlie Daniels Parkway from Mt. Juliet Road to Charlie Daniels Park.
- PB2 Construct sidewalks on each side of Mt. Juliet Road between I-40 and Lebanon Pike.
- PB3 Construct a greenway/walking trail along Cedar Creek.

**PRIORITIZATION OF RECOMMENDED IMPROVEMENTS
MT. JULIET CORRIDOR STUDY**

Priority	Project #	Description
1	R11	Widen Lebanon Pk. (U.S. 70) to five lanes
2	R1	Construct new interchange at I-40 and Beckwith Rd.
3	R2	Construct new two lane arterial roadway from new interchange (R1) to Lebanon Pk.
4	R6B	Modify Mt. Juliet Rd. interchange to provide a dual left turn lane and two lane on ramp
5	PB1	Construct sidewalks on C. Daniels Pkwy. to C. Daniels Park
6	R7	Realign and signalize Belinda Pkwy. @ Mt. Juliet Rd.
7	R4	Improve and extend Curd Rd. to new roadway (R2)
8	R5	Improve and extend Rutland Rd. to Beckwith Rd.
9	PB2	Construct sidewalks on Mt. Juliet Rd. from I-40 to Lebanon Pike
10	R3	Realign Old Lebanon Dirt Rd. to intersect new roadway
11	R9A	Construct new two lane north/south roadway from new interchange @ Central Pk. (R8A)
12	R8A	Construct new interchange at I-40 and Central Pk.
13	R13	Widen Division St. to provide 12' lanes and turn lanes at intersections
14	R14	Widen Old Lebanon Dirt Rd. to provide 12' lanes and turn lanes at intersections
15	PB3	Construct greenway/walking trail along Cedar Creek

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTION
3	PROPOSED INTERCHANGE

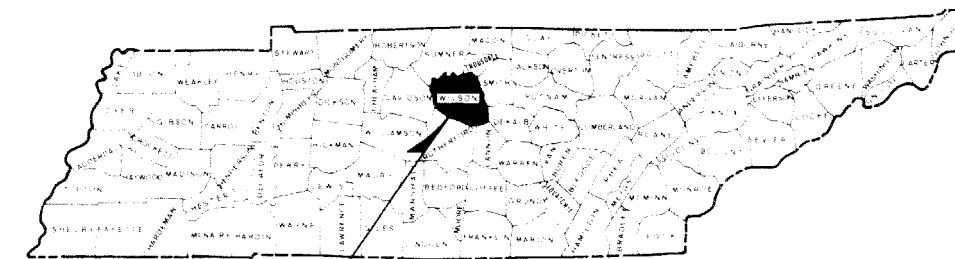
STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION BUREAU OF PLANNING AND DEVELOPMENT

TENN.	YEAR	SHEET NO.
	1994	1
FED. AID PROJ. NO.		
STATE PROJ. NO.		

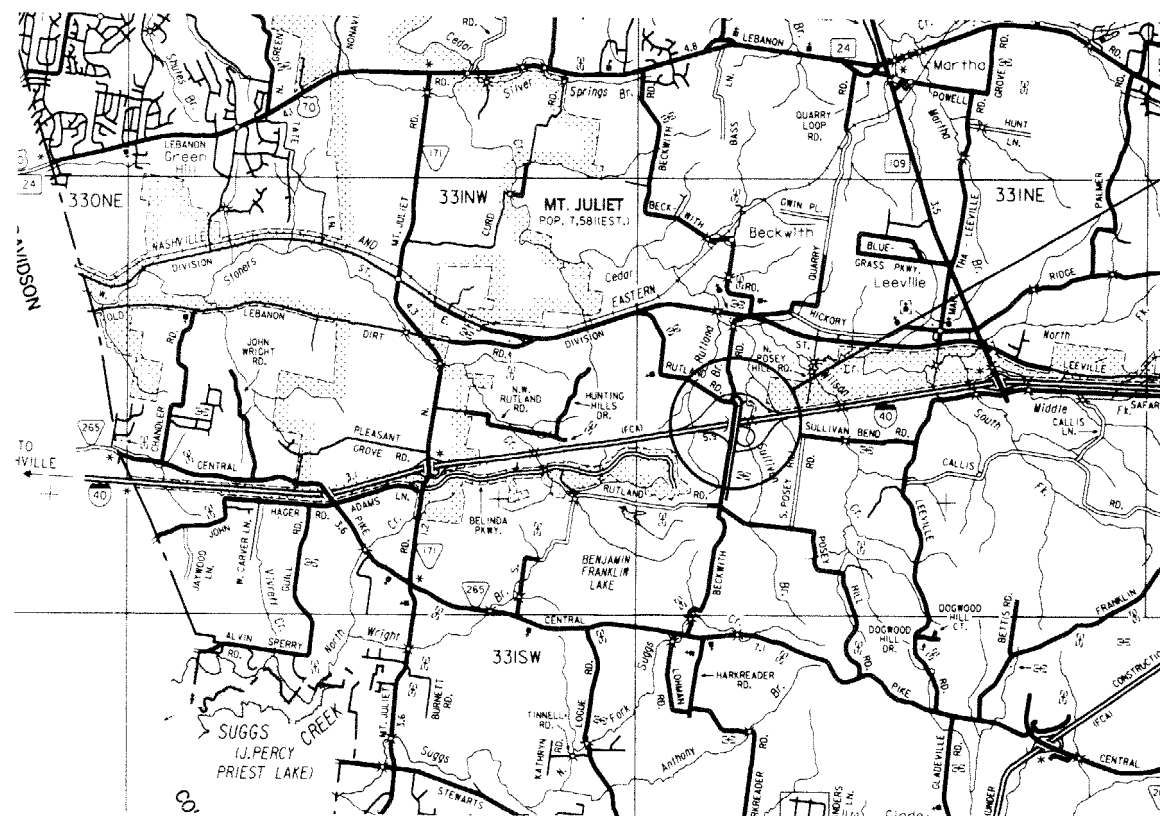
WILSON COUNTY

PROPOSED INTERCHANGE
INTERSTATE - 40 AND BECKWITH ROAD

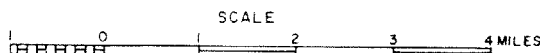
STATE HIGHWAY NO. F.A.H.S. NO.



PROJECT LOCATION



PROJECT LOCATION



SPECIAL NOTES

ALL BIDS MAY BE REJECTED BY THE COMMISSIONER IF ANY OF THE UNIT PRICES LISTED THEREIN ARE OBVIOUSLY UNBALANCED, EITHER EXCESSIVE OR BELOW REASONABLE COST ANALYSIS VALUE.

THIS PROJECT TO BE CONSTRUCTED UNDER THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION DATED MARCH 1, 1981 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT.

DESIGNED BY: CHARLES GRAVES DRAFTSMAN: CHARLES GILLIHAN

APPROVED: _____
DIRECTOR, DESIGN DIVISION

DATE: _____

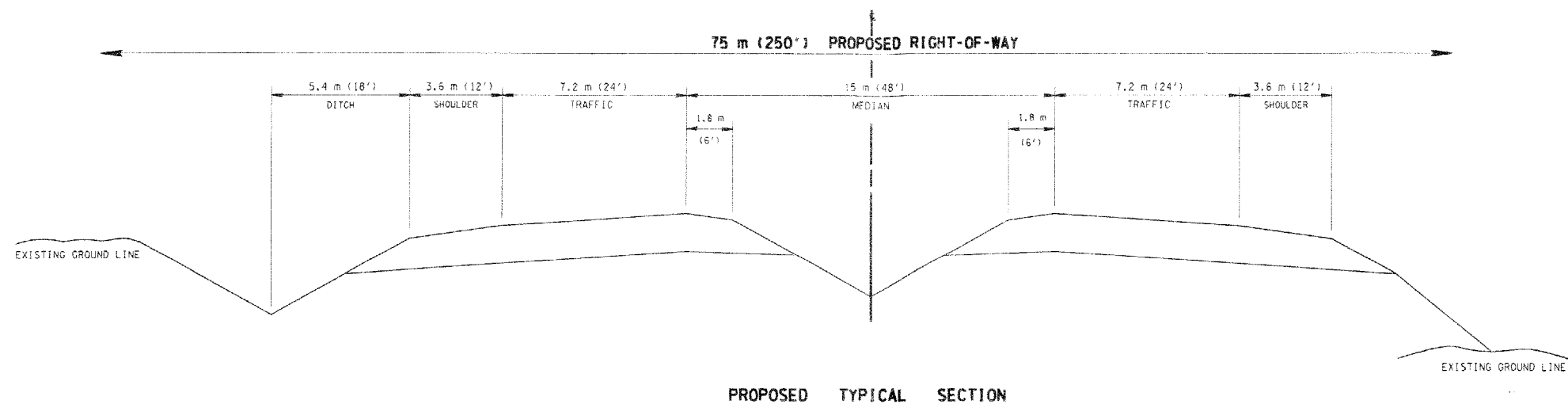
APPROVED: _____
COMMISSIONER

TRAFFIC DATA	
ADT	
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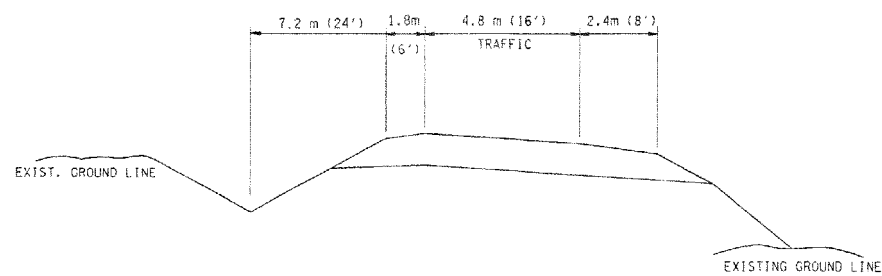
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____
DIVISION ADMINISTRATOR DATE

TYPE	YEAR	PROJECT NO.	SHEET NO.
			2



BECHWITH ROAD



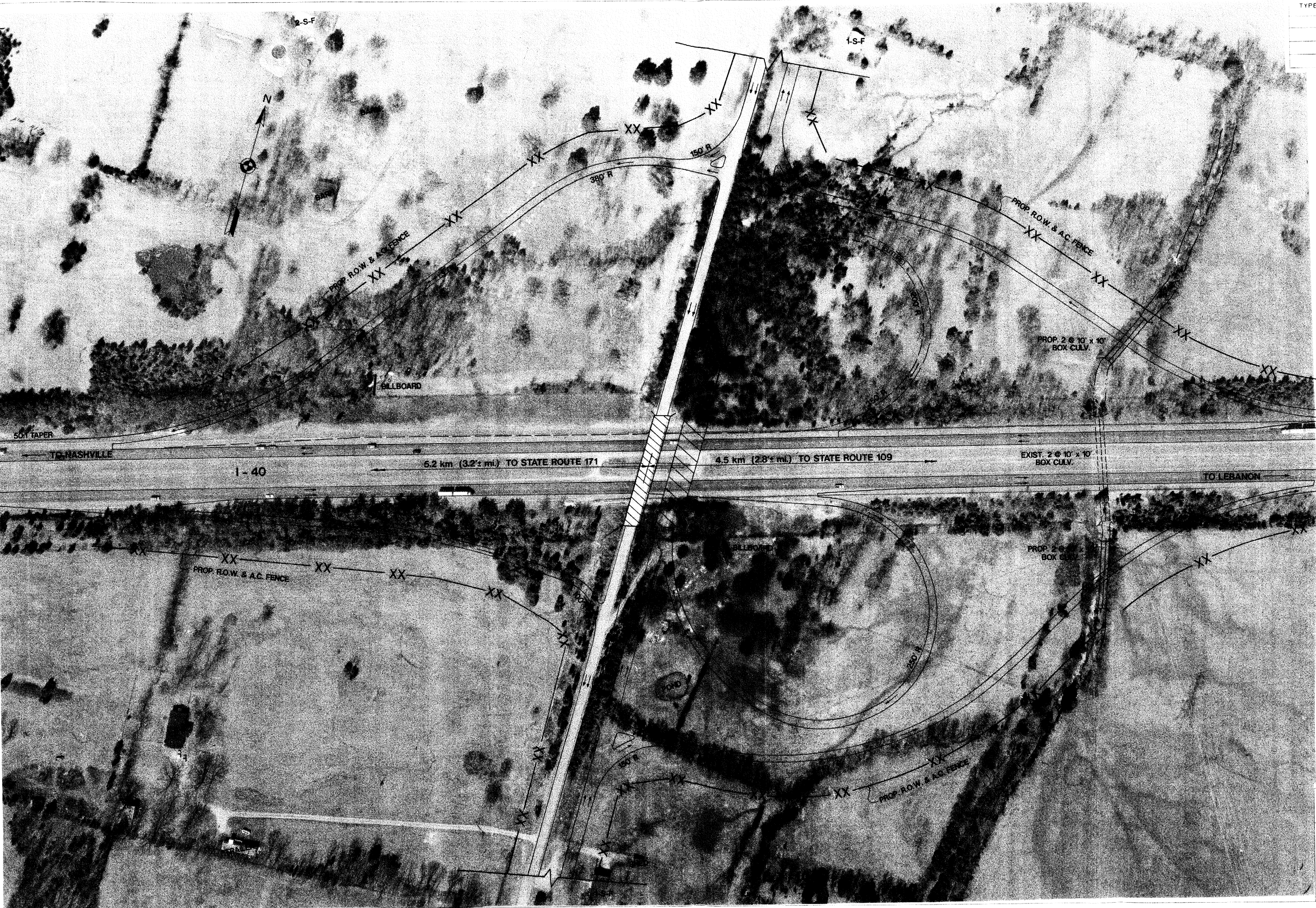
PROPOSED TYPICAL SECTION

ONE LANE RAMP

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING & DEVELOPMENT

WILSON COUNTY
PROPOSED
INTERCHANGE
I-40 @ BECKWITH
ROAD

TYPE	YEAR	PROJECT NO.	SHT NO.
			3



50:1 TAPER

SCALE: 1" = 100'

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PROPOSED INTERCHANGE
I - 40 @ BECKWITH ROAD
WILSON COUNTY