

SPEED LIMIT STUDY RAWLINS, WYOMING

August 2009

Prepared for:

Department of Public Works
City of Rawlins, Wyoming

By:

A. J. Schepp, P.E.
4901 Klipstein Rd.
Cheyenne, WY 82009

August 25, 2009

Dwane Stolns, Director
Department of Public Works
City of Rawlins, WY
P.O. Box 953
Rawlins, WY 82301

Hi Dwane,

Enclosed are two final copies of the Rawlins Speed Study. The three revisions resulting from the City Council workshop meeting on August 18, 2009 have been included in the final study report. They are (1) the city parks are 20 MPH; (2) High St. 25 MPH west of 11th Street; and (3) Daley St. 25 MPH from Colorado St. to Rodeo Street. Also enclosed is a CD disk of the maps in PDF format and the city purchase order which I have signed. Would you please send it to the City Finance Department upon your approval.

It has been a pleasure working with you and the rest of the city officials and city council members. If future revisions or study of the speed limits, or any other traffic related problems arise, contact me. I can always addendum the study which will take a minimum of time and expense to the city.

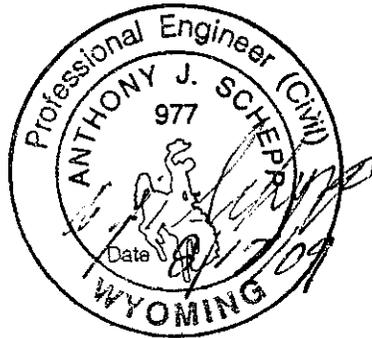
If you have any questions or need additional copies of the study please contact me.

Sincerely,

A.J Schepp, P. E.

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SPEED LIMIT STUDY RAWLINS, WYOMING

August 2009

INTRODUCTION

The City of Rawlins determined that an engineering study of the regulatory speed limits on the city streets under its jurisdiction was warranted. This report is the result of that study. Due to other related studies being considered and/or programmed, this study did not include the downtown business district or the public school areas. Since the state highways (I-80, US 287, US 287 by-pass, and WY Hwy 71) are under the jurisdiction of the Wyoming Department of Transportation, they also were not included in the study.

STATE SPEED LIMIT LAWS

Wyoming State Statutes, section 31-5-301 establishes maximum speed limits of:

1. 20 MPH when passing a school building or the grounds thereof, or a school crossing if appropriate signs giving notice of that limit are erected.
2. 30 MPH in any urban district.

Wyoming State Statutes, Section 31-5-109, permits local authorities with respect to streets and highways under their jurisdiction to alter or establish speed limits as authorized by the statutes.

Wyoming State Statutes, Section 31-5-303 requires an engineering and traffic investigation to raise or lower the maximum speed limits established under Wyoming State Statute, Section. 31-5-301.

RAWLINS SPEED LIMITS

Rawlins Municipal Code, Chapter 10.24.Speed Limits, included the following:

Section 10.14.010 states that the state speed limit laws are applicable on all city streets, except that based upon an engineering and traffic investigation, certain speed regulations shall be applicable upon specified streets or in certain areas.

Section 10.24.070 states: A maximum 20 MPH speed limit when passing a school building or the grounds thereof, or a school crossing if appropriate signs giving notice of that limit are erected; the speed limit designated by WYDOT upon any through highway except in school zones, or unless otherwise posted; and all streets within the city limits, 30 MPH unless otherwise posted.

Other sections cover reasonable and prudent speeds and reduced speed at special hazards.

EXISTING SPEED LIMITS

Signs stating "Rawlins/Speed Limit/30 MPH/Unless Otherwise Posted" are posted on all state highway entrances to the city except on WY Highway 71 approaching Sage Creek Drive.

All functionally classified collector streets are posted 30 MPH except:

1. 15 MPH on Elm St. from 23rd St. to El Rancho Drive.
2. 20 MPH for northbound traffic on 18th St. north of Spruce Street.
3. All streets adjacent to school grounds are posted 20 MPH.
4. The Washington St. underpass is posted at 20 MPH.
5. Two pedestrian crossings on 15th St. are posted at 15 MPH.
6. The Sam Tulley, Bolton, Rob Roy, and VFW City Parks are posted at 15 MPH on adjacent streets.
7. Washington St. is posted at 15 MPH from Davis Street to south of Miller Street.

SPEED ZONING

Speed control is controversial because of differences of opinion among engineers, enforcement officers, motorists, and people living along the street. Speed limits are selected to balance travel efficiency versus safety. A rational speed limit is one that is safe, one that most people consider appropriate, one that will protect the public, and one that can be enforced. Properly established speed limits foster voluntary compliance and separate the occasional high-risk driver from the vast majority of drivers.

The majority of motorists select a speed to reach their destination in the shortest time possible and to avoid endangering themselves, others, and their property. In selecting their speed they consider roadway, traffic, weather, and other conditions. The collective judgment of the majority of motorists represents the level of reasonable travel and acceptable risk. Research and engineering experience has shown that the upper region of acceptable risk is around the 85th percentile speed. The 85th percentile speed is the speed at which 85% of the motorists are traveling, or below.

The 85th percentile speed is a major factor in selecting the appropriate speed limit for a given street. However, other factors such as crash experience, street geometrics (such as curves,

widths, and sight distance), parking, adjacent land use, driveways, pedestrian activity, etc. must also be considered.

STREET FUNCTIONAL CLASSIFICATION SPEED ZONING

It is a common practice to establish city speed limits based upon the type of traffic using the street, since in most cases the street physical features and traffic characteristics are similar within each classification. However, higher or lower speed limits may be warranted on individual streets or sections of a street. However speed limits should not be altered too frequently as it will confuse the motorists.

The Rawlins functional street classification map was obtained from WYDOT and is shown in Figure I. General characteristics of street classifications are:

Local Streets - primary function is to provide access to individual residential properties for motorized vehicles, pedestrians, and bicycles. They carry traffic that has its destination or origin on that street or from within the local neighborhood. They are mostly two-way streets with on-street parking as well as residential driveways. They do not carry through traffic from one neighborhood to another. Commercial development generally is not allowed, however some local streets do have sections of commercial development. The predominate speed limits are 25 to 30 MPH.

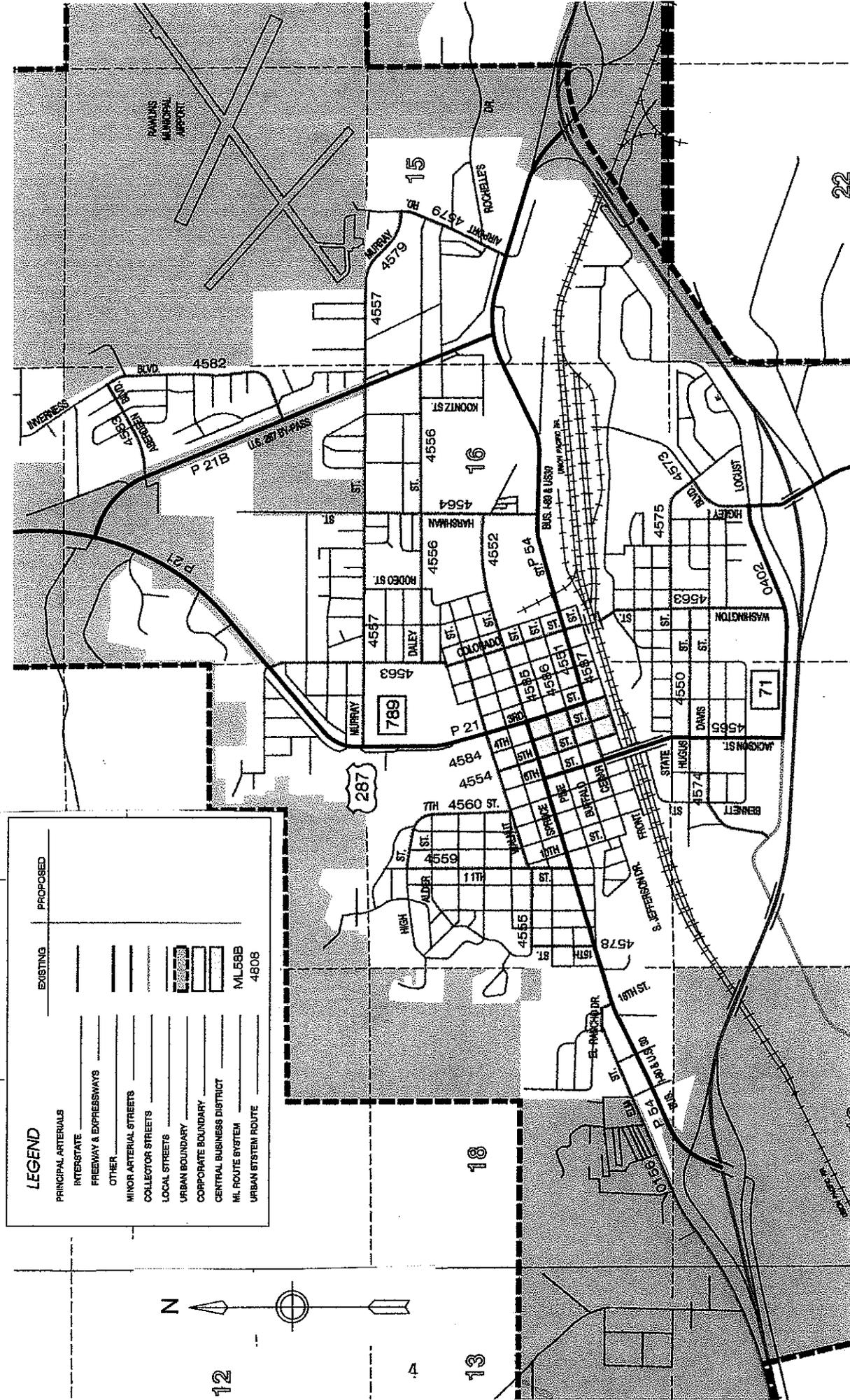
Collector Streets - primary function is to serve through traffic from residential neighborhoods and local traffic generated by residents who live along the street corridor. Development along the street is primarily single and multi-family residents with some commercial development. On-street parking may or may not be allowed. Generally the speed limit range is from 25 to 45 MPH.

Minor Arterial Streets - primary function is to provide service to motorists for movement between areas, and cross the city with limited individual residential access. The predominant speed limits are generally 35 to 45 MPH. Rawlins has one minor arterial street, which is Jackson St. from WY 71 to Cedar St. and then 6th St. from Cedar St. to Spruce St. The state highways (sections of Spruce St., Cedar St., and 3rd St.) are also classified as arterial streets.

CRASH HISTORY

A three year crash history (2005-2007) was obtained from the Wyoming Department of Transportation. An analysis of the total crashes by year and type, and a review of the highest crash streets and/or intersections was conducted.

The average annual crash history was compared to similar populated cities in Wyoming such as Evanston, Green River, Cody and Riverton. When the statistics were adjusted to the



LEGEND

EXISTING	PROPOSED
PRINCIPAL ARTERIALS	
INTERSTATE	
FREIGHTWAY & EXPRESSWAYS	
OTHER	
MINOR ARTERIAL STREETS	
COLLECTOR STREETS	
LOCAL STREETS	
URBAN BOUNDARY	
CORPORATE BOUNDARY	
CENTRAL BUSINESS DISTRICT	
ML ROUTE SYSTEM	
URBAN SYSTEM ROUTE	
	ML 588
	4808

FIGURE I

STREET CLASSIFICATION

population and to crashes/resident and severity of crash (fatal, injury, property damage) it appears Rawlins does not experience a "higher than average" crash rate.

FIELD REVIEWS

A meeting with city officials was held on 2 February 2009 to review the scope of the study and locate any areas of speed related concerns on the city street system. The street system was then field reviewed. The field review included the street geometrics, intersection sight distance, inventory of existing posted speed limits, estimates of vehicle speeds, and on-street parking characteristics.

Another field review was conducted from 3 March 2009 through 5 March 2009 to conduct radar speeds on the collector streets adjacent to the major city parks, and conduct a detailed review of street sections that were determined to be problematic due to their physical features, crash experience, or adjacent land use.

CITY STREET MILEAGE

The following functional street classification mileage was obtained from WYDOT:

Total miles within corporate limits	= 67.16
All functional streets	= 55.75
(1.64 miles of private streets not included)	
Local streets	= 42.2
Collector streets	= 12.74
Minor arterial	= 0.81
WYDOT jurisdiction	= 7.23

SPEED LIMIT ANALYSIS

Local Residential Streets

The existing speed limit on residential streets is 30 MPH. The City Municipal Code, Chapter 12.36.060 "Placement of Trees", provides a 75 foot triangle from the centerline of intersecting streets to be clear of trees or shrubs. This sight triangle at an uncontrolled intersection provides stopping sight distance for an approaching speed of about 25 MPH.

Many of the local streets are 38 feet wide or less in sections or total length and have sight distance restrictions due to large vehicle on-street parking along the street or at intersections, and vehicles parking up to the intersection curb radius. City Municipal Code 10.33.040 states no parking within 20 feet of a crosswalk at an intersection or within 30 feet approaching a stop sign.

Therefore, a 25 MPH speed limit is recommended for the residential local street system. Some exceptions to this recommendation are listed in this report under "Speed Limit Exceptions".

Collector Streets

The existing speed limit on the collector streets is 30 MPH, which is state law for streets in an urban district. A crash history review, car following and radar speeds, and the physical street field review confirm the 30 MPH speed limit is realistic.

Therefore, no change in the 30 MPH speed limit for collector streets is recommended. Some exceptions to this recommendation are listed in this report under "Speed Limit Exceptions".

SPEED LIMIT EXCEPTIONS

The recommended blanket speed limits of 25 MPH for local streets and 30 MPH for collector streets do not consider specific sections of streets which have characteristics and/or adjacent land use density or usage variations where a different speed limit is realistic and warranted.

Following is a list of the street system on which the recommended speed limit is different than that recommended for the blanket speed limits:

1. Rochelle Dr. - 35 MPH from Airport Rd. to golf course entrance.
2. South Higley Blvd. - 35 MPH from State St. to East Railroad St.
3. East Railroad St. - 35 MPH from east of the J and B Trailer Park to the existing posted 25 MPH approaching the horse stable area/
4. 30 MPH on streets in the industrial and highway business zoned area as shown on the speed limit maps in Appendix B.
5. Locust St. - 30 MPH from Higley Blvd. to Ash Ave. (horse stable area).
6. Daley St - 25 MPH from Colorado St. to Rodeo St..
7. Inverness St. - 25 MPH from 287 Bypass to Damley St.
8. 11th St. - 25 MPH from Spruce St. to High St.
9. Elm St. - 25 MPH from 23rd St. to El Rancho Dr.

10. 18th St. - 25 MPH from Spruce St. to El Rancho Dr.
11. Washington St. Railroad Underpass - 20 MPH as posted.
12. 15th St. - 20 MPH from Gallup Place to Walnut St.
13. Streets adjacent to city parks as listed in the "City Parks" section of this report.

CITY PARKS

The major city parks are posted at 15 MPH. They are Bolton, VFW, Rob Roy, Washington, County, and Sam Tulley parks. All but Rob Roy Park have an adjacent collector street.

The field reviews and following speed studies were conducted in February and March which showed a low usage of the parks as expected. However, an accurate evaluation of the parks activity could not be done.

Speed studies were conducted on Washington St. adjacent to Bolton Park, on Daley St. adjacent to the VFW Park, and on Elm St. adjacent to Sam Tulley Park and the hospital. (See Appendix A)

Following are the results of the studies:

SPEEDS	PARKS		
	<u>Sam Tulley</u>	<u>Bolton</u>	<u>VFW</u>
85 th Percentile Speed	28 MPH	30 MPH	28 MPH
50 th Percentile Speed	24 MPH	24 MPH	24 MPH
<u>Violation Percentage</u>			
15 MPH	100%	100%	100%
20 MPH	80%	78%	76%
25 MPH	46%	36%	41%
30 MPH	5%	6%	0%

Based on the speed study results, the 15 MPH speed limit appears to be too low and a 25 MPH speed limit would be more realistic. Therefore, the city officials were relied upon for information on seasonal park usage. The consensus was that the park usage is significant and a 25 MPH speed limit would be too high. Therefore a 20 MPH speed limit on the streets adjacent to the parks is recommended.

The field reviews showed long term on-street parking in some areas along adjacent park curbs. This, as well as the speed study results show a need for the following recommendation to

increase park pedestrian safety:

1. Restrict long term (over eight hours) parking on the park side of all adjacent streets.
2. Post a sign sequence of a "Pedestrian" warning sign and a "SPEED LIMIT 20 MPH" on the streets approaching these parks that have a 30 MPH speed limit. The speed limit sign is not needed on the local streets.
3. Post a "NO PARKING" sign to restrict parking 20 feet in advance of all intersection curbs at intersections adjacent to these parks.

A sketch of the recommended city park signing is shown in Appendix A.

RECOMMENDATIONS

1. 25 MPH blanket speed limit on local streets.
2. 30 MPH blanket speed limit on collector streets.
3. Exceptions to blanket speed limits as listed under "SPEED LIMIT EXCEPTIONS".
4. 20 MPH on streets adjacent to parks as listed in "CITY PARKS" and additional traffic control.
5. 15th St. from Gallup Place to West Maple St. should be reviewed for pedestrian crossing traffic, parking, and sidewalk to provide standard pedestrian crossing or crossings.
6. The elementary schools (Pershing and Mtn. View) will be eliminated in the near future and the students bussed to the new schools east of the 287 Bypass. The "School Speed Limit 20 MPH" and related school signing should be removed when the schools are vacated. Depending upon the method of bus operation, future speed limits may need to be posted or bus stops designated. A study of bus and student routing to the bus stops should be conducted.
7. The northwest section of Rawlins, bordered by West Spruce Street, 7th Street, High Street, and 15th Street/Mtn. View Blvd., should be reviewed as to the street collector system due to the land use along 15th St., narrow street width along 11th St., Mtn. View Blvd. usage through the park, and other related factors.
8. Upon approval of the speed study, the City should field review the city streets and revise the posted speed limits as warranted. The city entrance speed limit signs should be changed to 25 MPH and one added on Sage Creek Rd. approaching Bennett St.

The collector system should have a 30 MPH speed limit sign posted as soon as practical at the beginning of the street and on all four exits of collector-to-collector intersections.

9. The High School and Middle School school crossing and sidewalk needs on Colorado St., Brooks St., and Harshman St. should be studied, and standard traffic control, sidewalk, and parking lot access be revised as warranted.

The recommended speed limits are shown on the maps in Appendix B.

APPENDIX A

CITY PARK VEHICLE SPEEDS

TYPICAL CITY PARK SIGNING

Speed Distribution Study

DATE EMAR 09
 TIME 1:30

WEATHER DRY
 POSTED SPEED 15 MPH

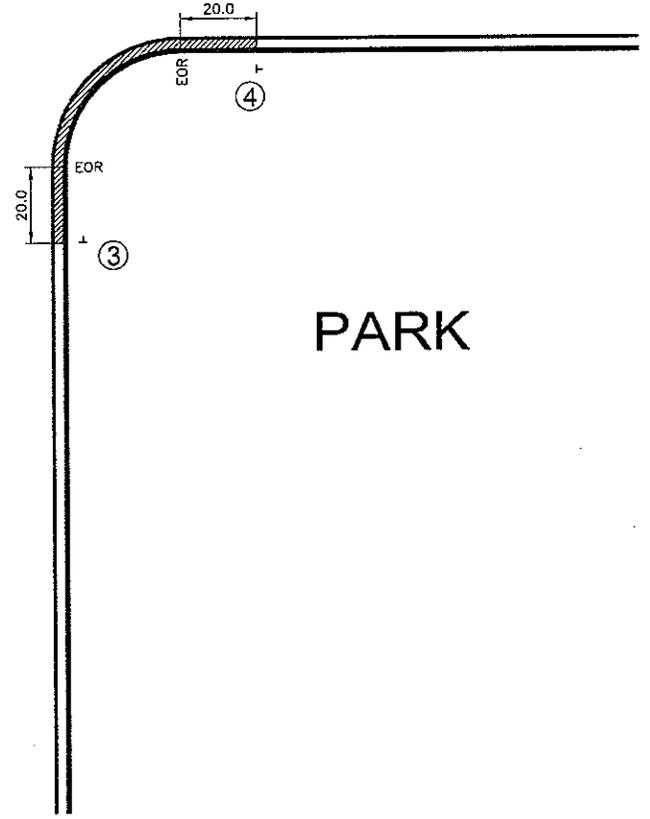
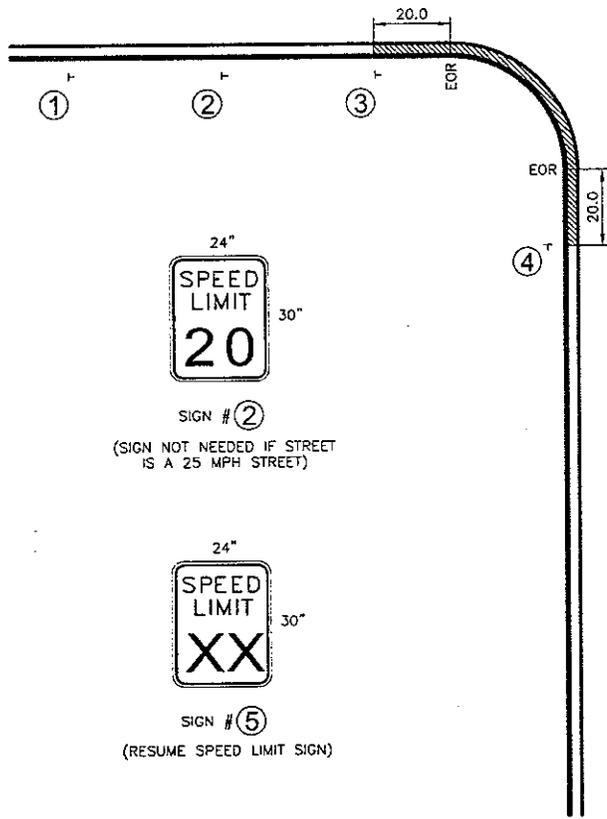
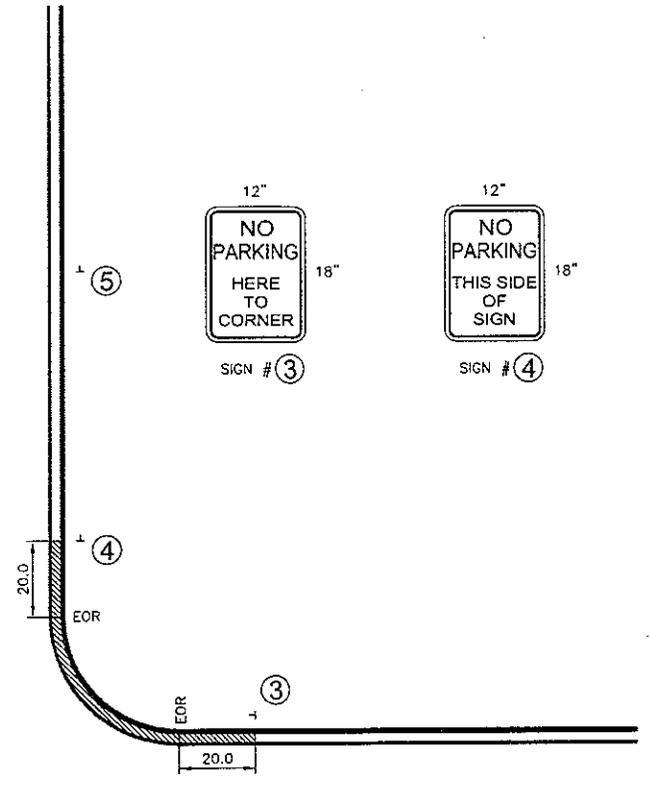
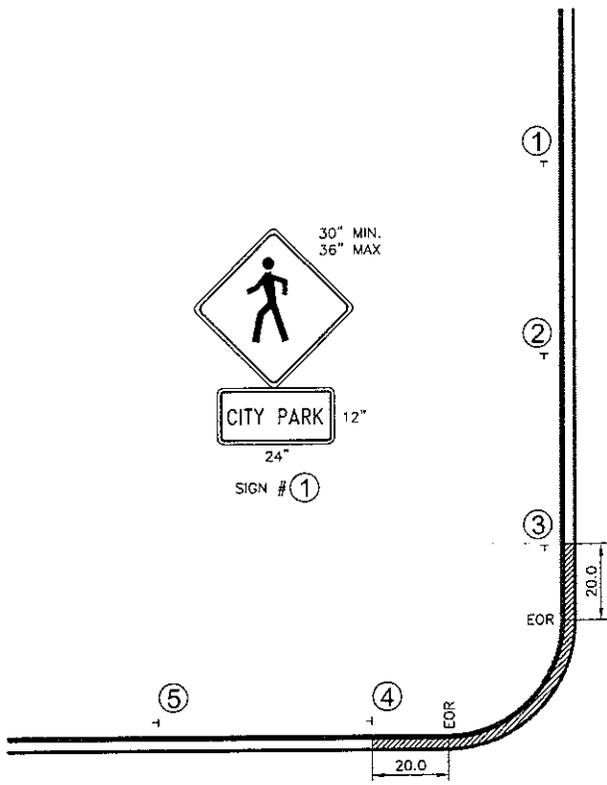
- LEGEND**
- LOCAL PASSENGER
 - FOREIGN PASSENGER
 - TRUCK
 - BUS

MEAN MPH
 MEDIAN 24 MPH
 MODE MPH
 85% TILE 28 MPH
 PACE MPH
 % IN PACE

REMARKS:
SPRINGS TAKEN
ABOUT 300 FT
EAST OF RADDO ST.

OBSERVER
AMS

SPEED	LOCATION	INTERVAL				
		TOTAL	L	F	T	B
78						
76						
74						
72						
70						
68						
66						
64						
62						
60						
58						
56						
54						
52						
50						
48						
46						
44						
42						
40						
38						
36						
34						
32						
30	X	X	X	X	X	X
28	X	X	X	X	X	X
26	X	X	X	X	X	X
24	X	X	X	X	X	X
22	X	X	X	X	X	X
20	X	X	X	X	X	X
18	X					
16						
14						



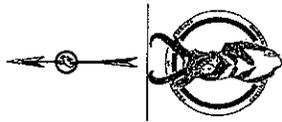
TYPICAL PARK SIGNING
(ALL INTERSECTIONS ADJACENT TO PARKS)

APPENDIX B

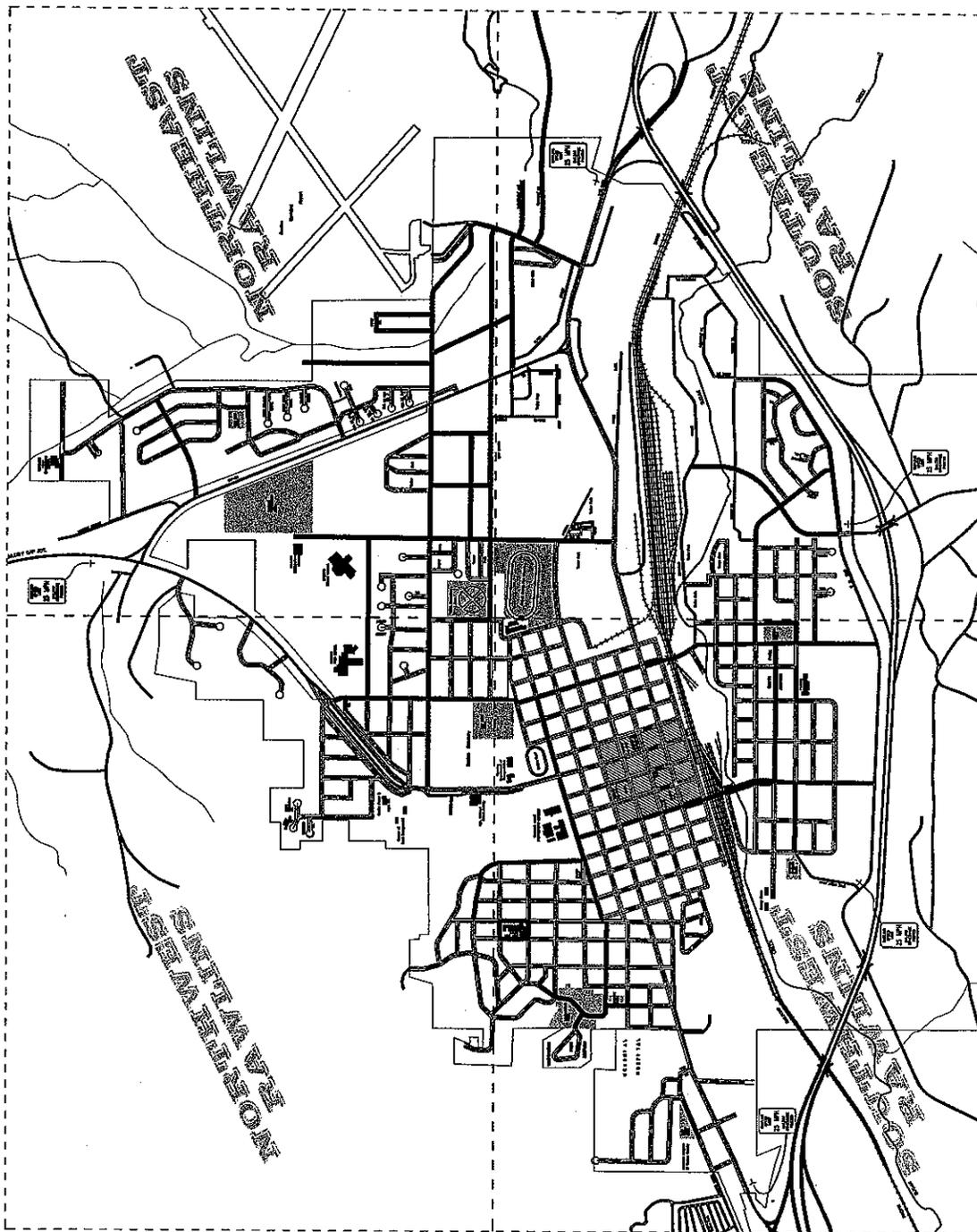
SPEED LIMIT MAPS

LEGEND

- SPEED LIMIT 20
- SPEED LIMIT 25
- SPEED LIMIT 30
- SPEED LIMIT 35
- SPEED LIMIT 40
- SPEED LIMIT 45
- SPEED LIMIT 50
- SPEED LIMIT 55
- SPEED LIMIT 60
- SPEED LIMIT 65
- SPEED LIMIT 70
- SPEED LIMIT 75
- SPEED LIMIT 80
- SPEED LIMIT 85
- SPEED LIMIT 90
- SPEED LIMIT 100
- SPEED LIMIT 110
- SPEED LIMIT 120
- CENTRAL BUSINESS DISTRICT
- CORPORATE CITY LIMITS
- STATE HIGHWAY SYSTEM

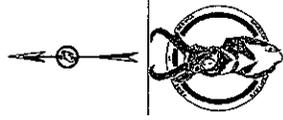


**SHEET LAYOUT
RAWLINS
SPEED STUDY
2009**

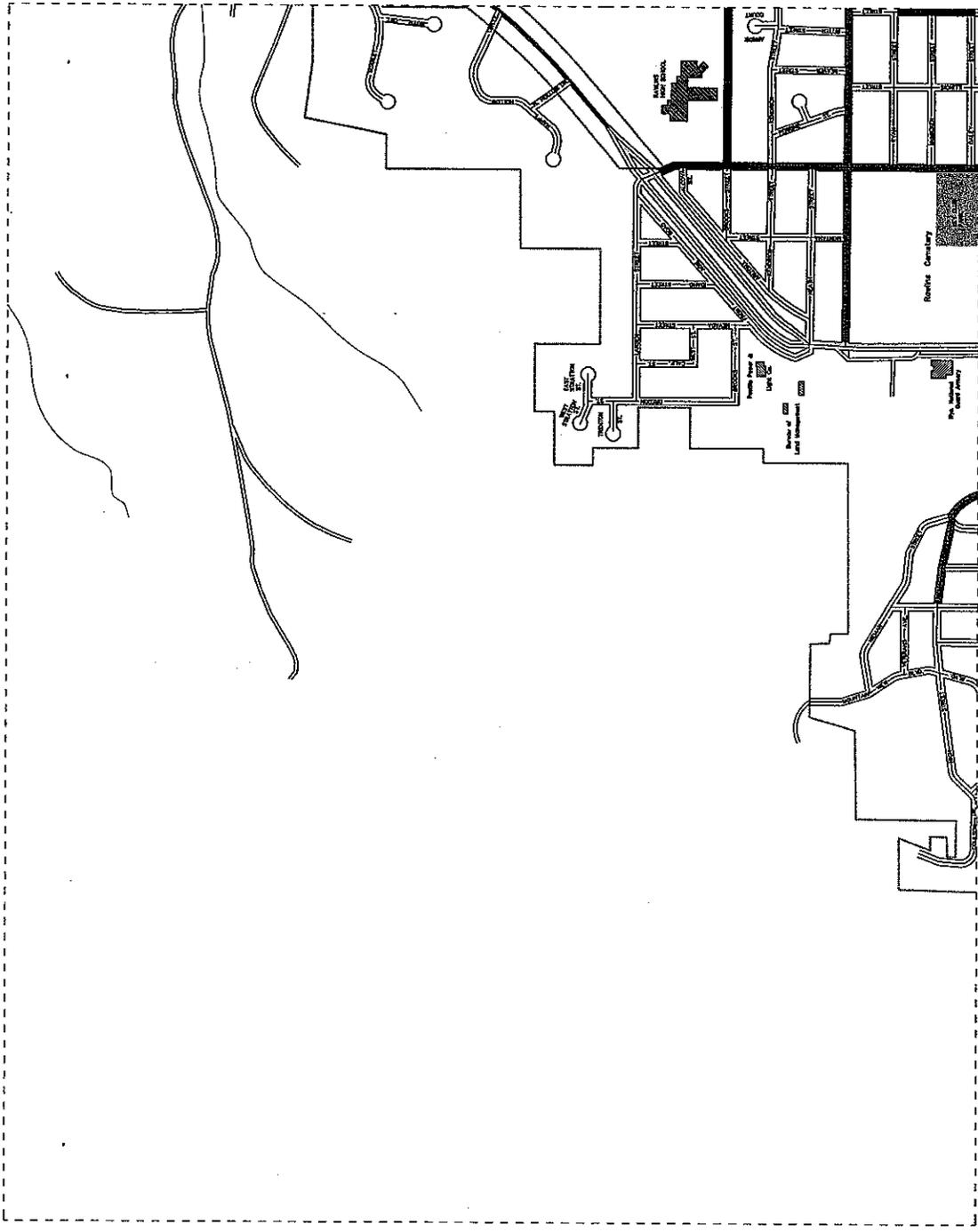


LEGEND

- SPEED LIMIT 25
- SPEED LIMIT 30
- SPEED LIMIT 35
- SPEED LIMIT 40
- SPEED LIMIT 45
- SPEED LIMIT 50
- SPEED LIMIT 55
- SPEED LIMIT 60
- SPEED LIMIT 65
- SPEED LIMIT 70
- SPEED LIMIT 75
- SPEED LIMIT 80
- SPEED LIMIT 85
- SPEED LIMIT 90
- SPEED LIMIT 100
- SPEED LIMIT 110
- SPEED LIMIT 120
- STATE HIGHWAY SYSTEM

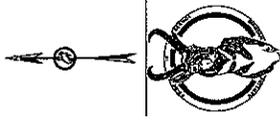


**NORTHWEST
RAWLINS
SPEED STUDY**



LEGEND

-  SPEED LIMIT 30
-  SPEED LIMIT 25
-  SPEED LIMIT 20
-  STATE HIGHWAY CENTRAL
-  BUSINESS DISTRICT
-  CITY LIMIT
-  STATE HIGHWAY SYSTEM



**SOUTHEAST
RAWLINS
SPEED STUDY
2008**

