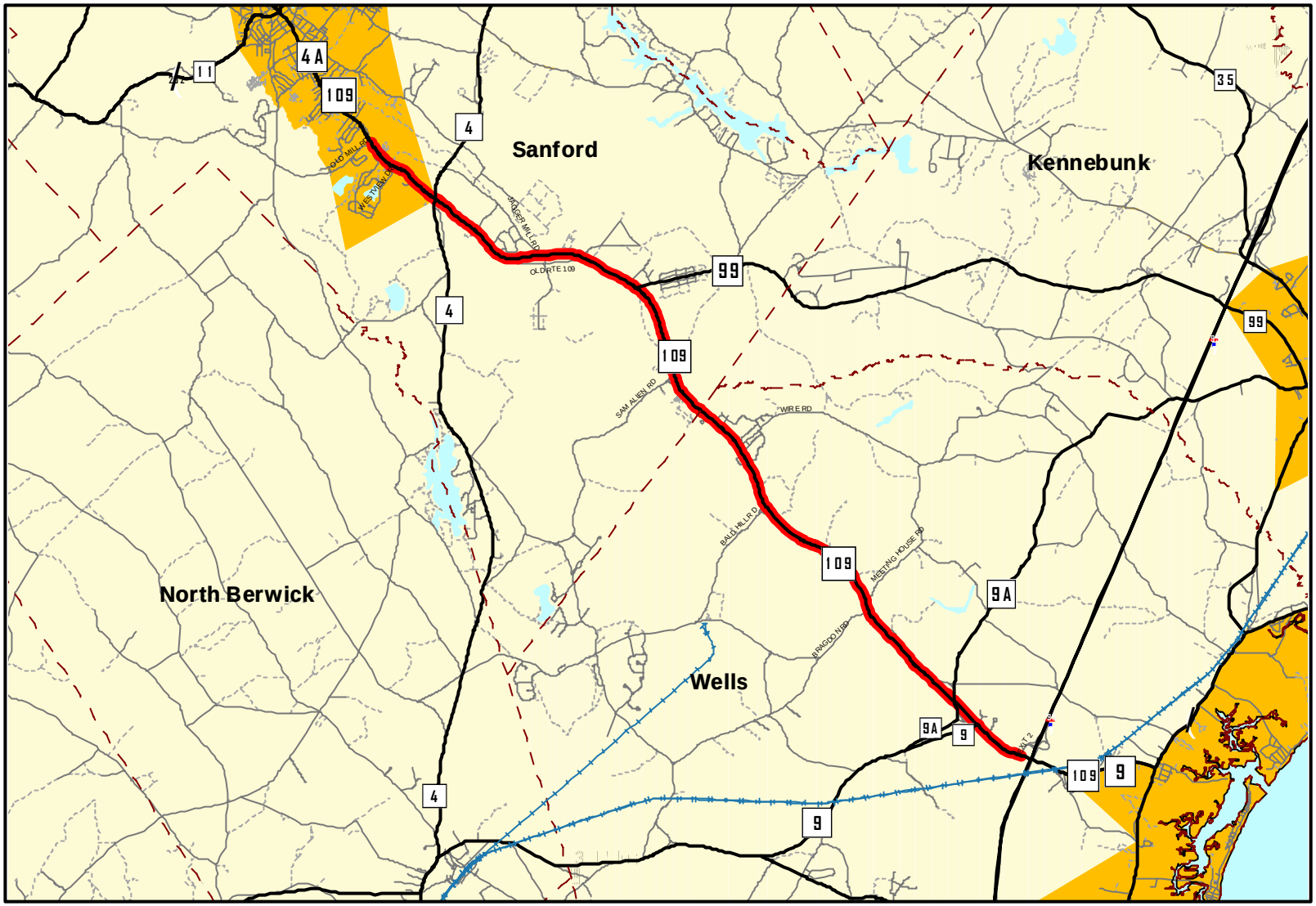



# Route 109 Corridor Study

Corridor Study Area

Study Area

4-23-84
DOT84-3-5
Old Mill Road

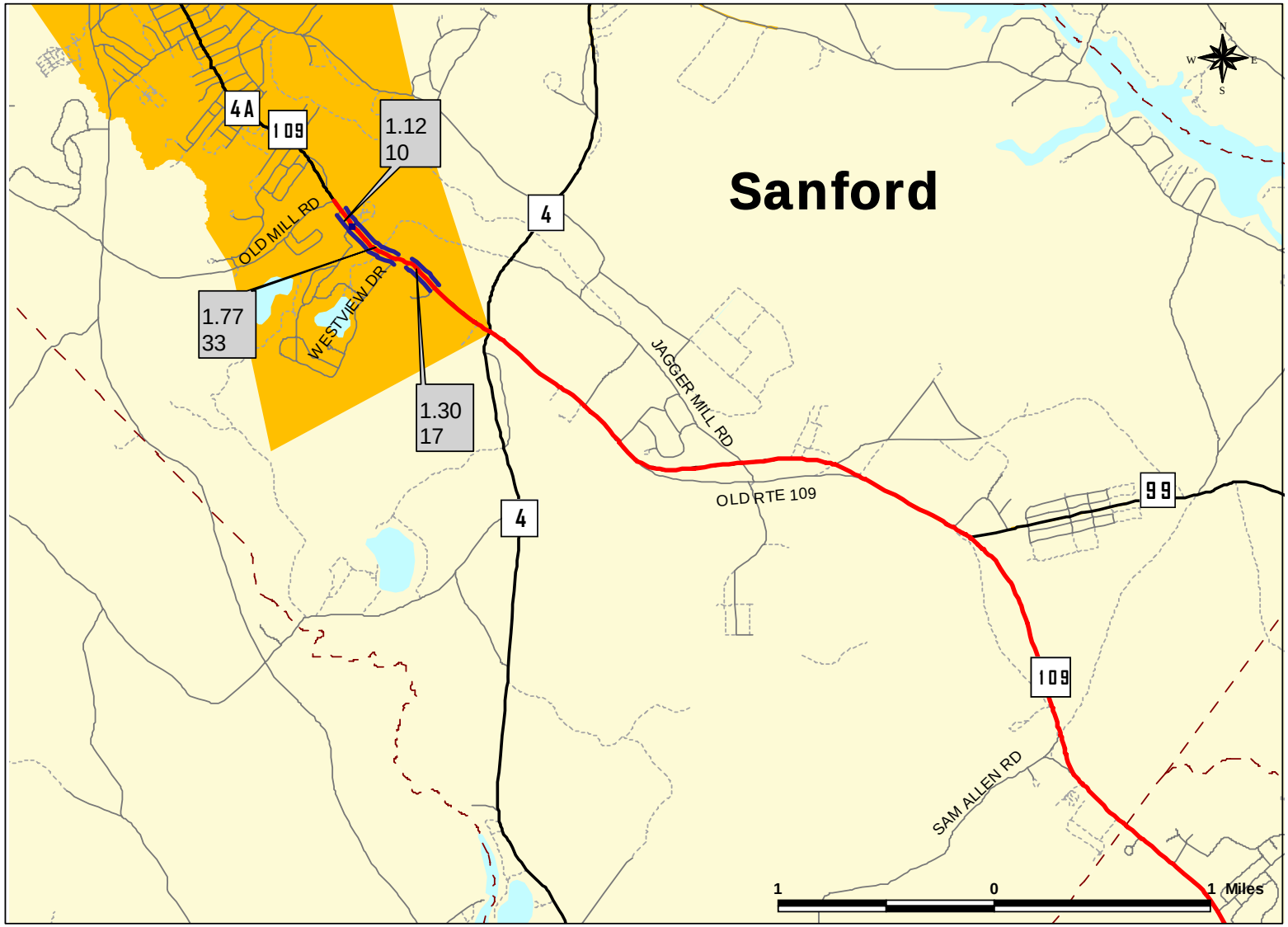
Westview Dr
Route 4

# Existing Crash Conditions

- High Crash Location is where frequency of crashes exceeds average State rate for similar locations.
    1. 8 or More Crashes in 3 Year Period
    2. Critical Rate Factor > 1.0

$$\textbf{Critical Rate Factor} = \frac{\text{Accident Rate}}{\text{Critical Rate}}$$

Critical Rate is the Expected Rate




# Route 109 Corridor Study

**Sanford**
**High Crash Locations**

Study Area
2000-2002 High Crash Locations

CRF
Total Crashes

March 17, 2004

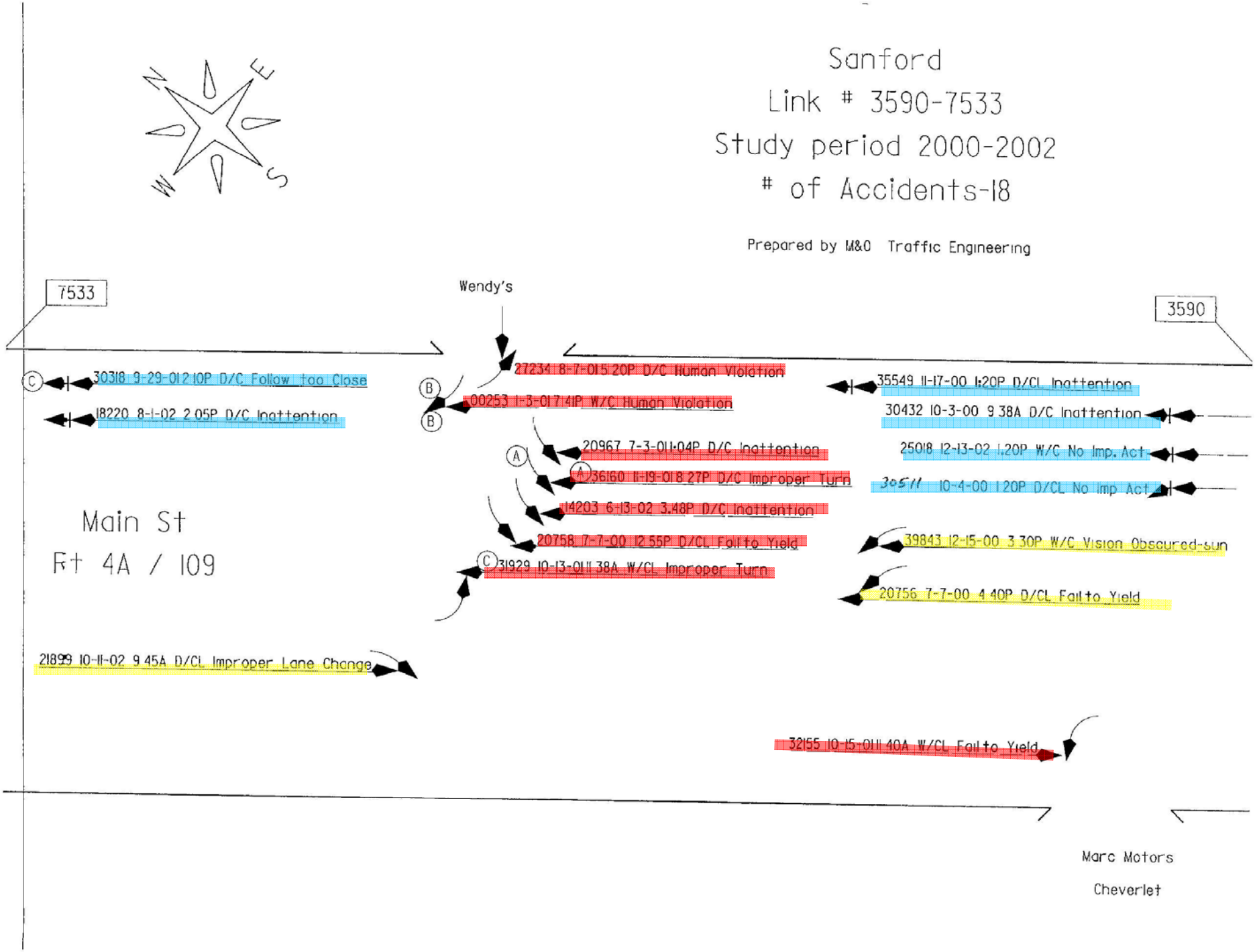
# Sanford

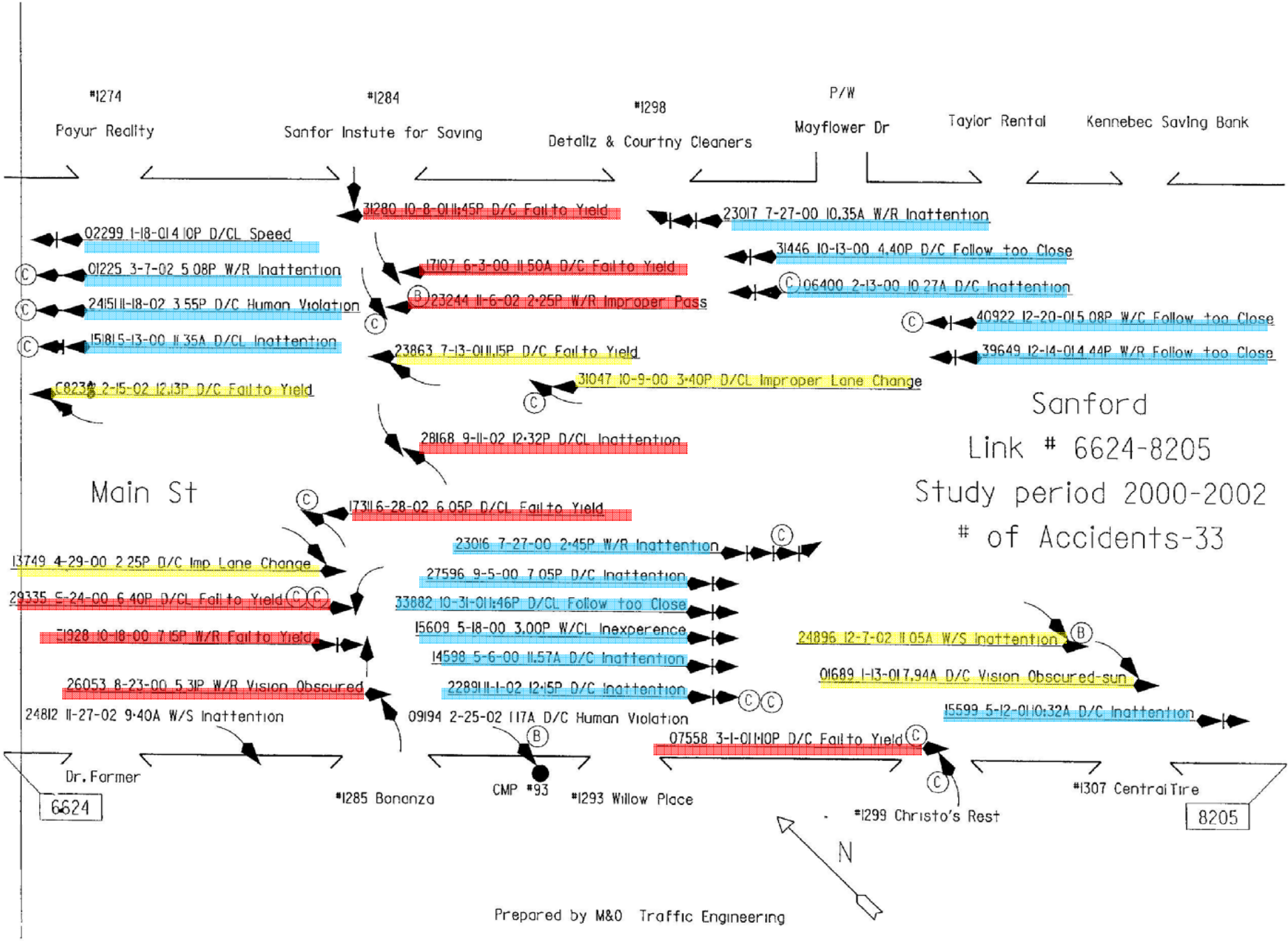
Link # 3590-7533

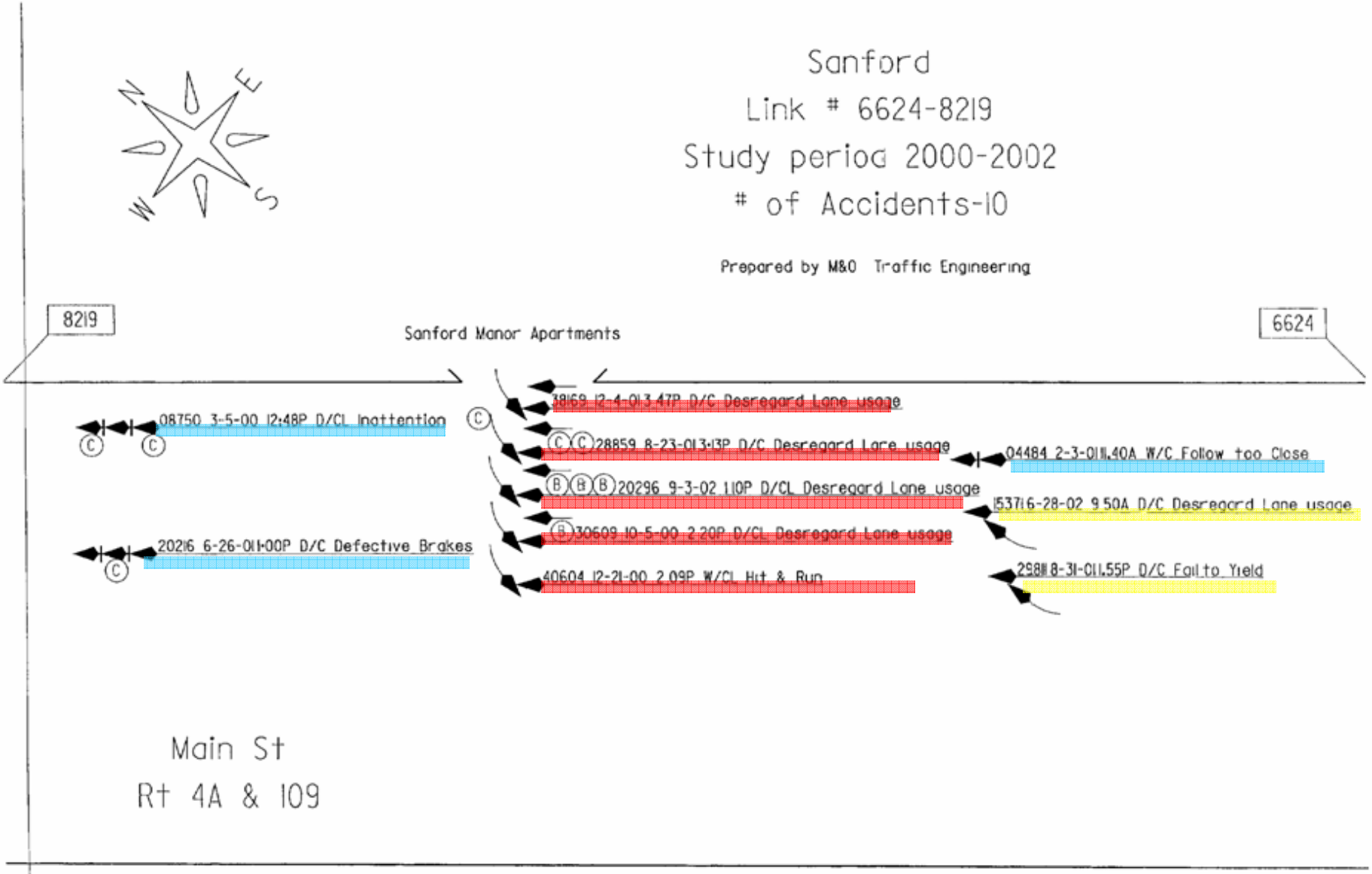
Study period 2000-2002

# of Accidents-18

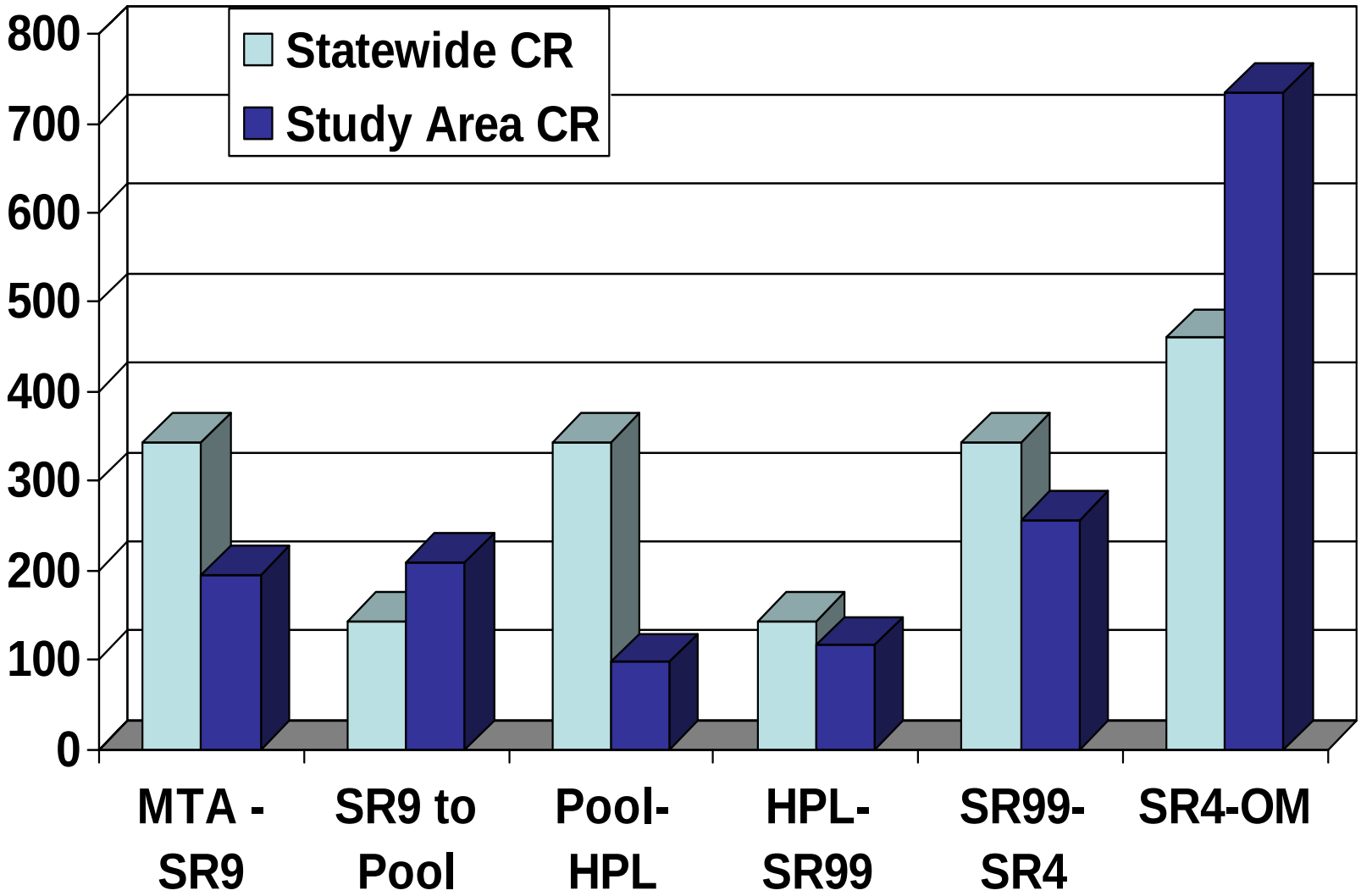
Prepared by M&O Traffic Engineering

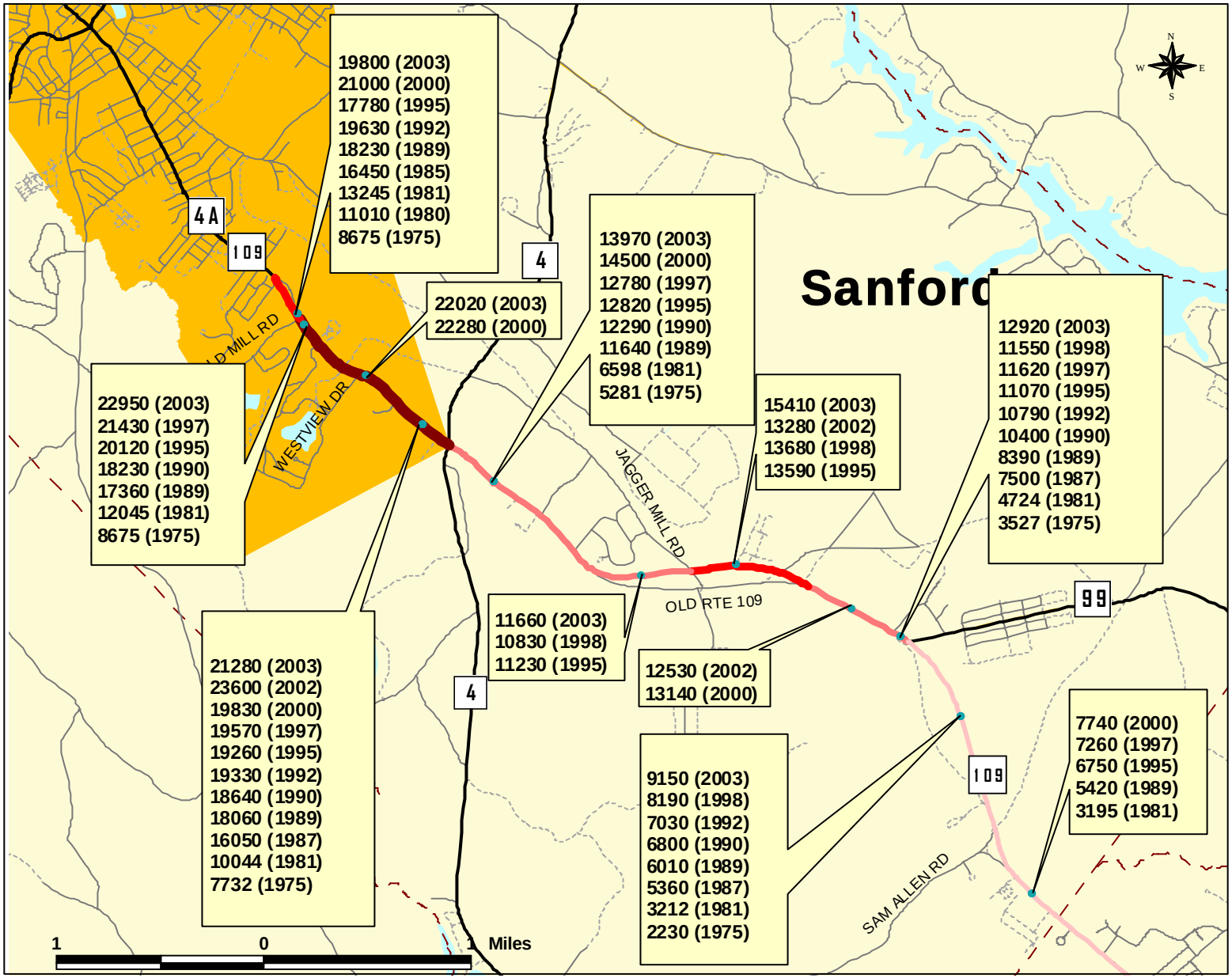



#1274
Payur Reality
#1284
Sanfor Instute for Saving
#1298
Detailz & Courtny Cleaners
P/W
Mayflower Dr
Taylor Rental
Kennebec Saving Bank
31280 10-8-01 11:45P D/C Fail to Yield
23017 7-27-00 10.35A W/R Inattention
02299 1-18-01 4 10P D/CL Speed
31446 10-13-00 4.40P D/C Follow too Close
01225 3-7-02 5 08P W/R Inattention
17107 6-3-00 11 50A D/C Fail to Yield
06400 2-13-00 10 27A D/C Inattention
24151 11-18-02 3 55P D/C Human Violation
23244 11-6-02 2:25P W/R Improper Pass
40922 12-20-01 5 08P W/C Follow too Close
151815-13-00 11 35A D/CL Inattention
23863 7-13-01 11.15P D/C Fail to Yield
39649 12-14-01 4.44P W/R Follow too Close
C823 2-15-02 12.13P D/C Fail to Yield
31047 10-9-00 3:40P D/CL Improper Lane Change
Sanford
Link # 6624-8205
Study period 2000-2002
# of Accidents-33
28168 9-11-02 12:32P D/CL Inattention
Main St
173116-28-02 6 05P D/CL Fail to Yield
23016 7-27-00 2:45P W/R Inattention
13749 4-29-00 2 25P D/C Imp Lane Change
27596 9-5-00 7 05P D/C Inattention
29335 5-24-00 6 40P D/CL Fail to Yield
33882 10-31-01 1:46P D/CL Follow too Close
E1928 10-18-00 7 15P W/R Fail to Yield
15609 5-18-00 3.00P W/CL Inexperence
24896 12-7-02 11 05A W/S Inattention
14598 5-6-00 11.57A D/C Inattention
01689 1-13-01 7.94A D/C Vision Obscured-sun
26053 8-23-00 5 31P W/R Vision Obscured
228911-1-02 12:15P D/C Inattention
24812 11-27-02 9:40A W/S Inattention
09194 2-25-02 1 17A D/C Human Violation
15599 5-12-01 10:32A D/C Inattention
07558 3-1-01 1:10P D/C Fail to Yield
Dr. Farmer
6624
#1285 Bonanza
CMP #93
#1293 Willow Place
#1299 Christo's Rest
#1307 Central Tire
8205
N
Prepared by M&O Traffic Engineering


Sanford
Link # 6624-8219
Study period 2000-2002
# of Accidents-10
Prepared by M&O Traffic Engineering
8219
Sanford Manor Apartments
6624
08750 3-5-00 12:48P D/CL Inattention
38169 12-4-01 3:47P D/C Desregard Lane usage
28859 8-23-01 3:13P D/C Desregard Lane usage
04484 2-3-01 11:40A W/C Follow too Close
20296 9-3-02 1:10P D/CL Desregard Lane usage
15371 6-28-02 9:50A D/C Desregard Lane usage
30609 10-5-00 2:20P D/CL Desregard Lane usage
20216 6-26-01 1:00P D/C Defective Brakes
40604 12-21-00 2:09P W/CL Hit & Run
29811 8-31-01 1:55P D/C Fail to Yield
Main St
Rt 4A & 109

# Crash Rate Comparison (2000-2002)






# Route 109 Corridor Study

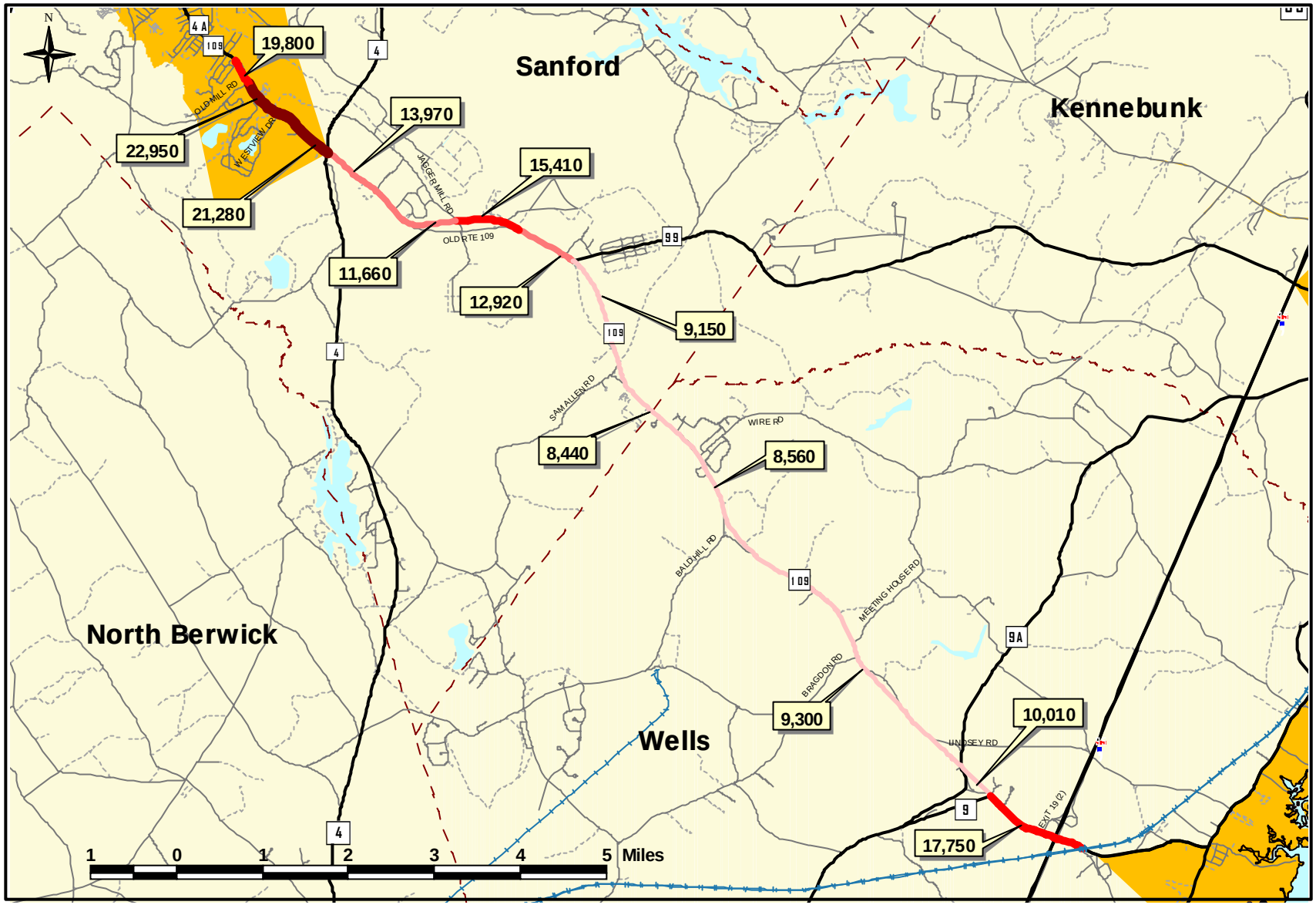
**Sanford 2003 Annual Average Daily Traffic & Historical Traffic Volumes**

Historical Traffic Counts

AADT (Year)

**2003 AADT**

- 8000 - 10000
- 10000 - 15000
- 15000 - 20000
- 20000 - 25000




# Route 109 Corridor Study

**2003 Average Annual Daily Traffic Volumes**

Daily Traffic

XX,XXX Annual Average

2003 AADT
- 8,000 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 25,000

**Figure**

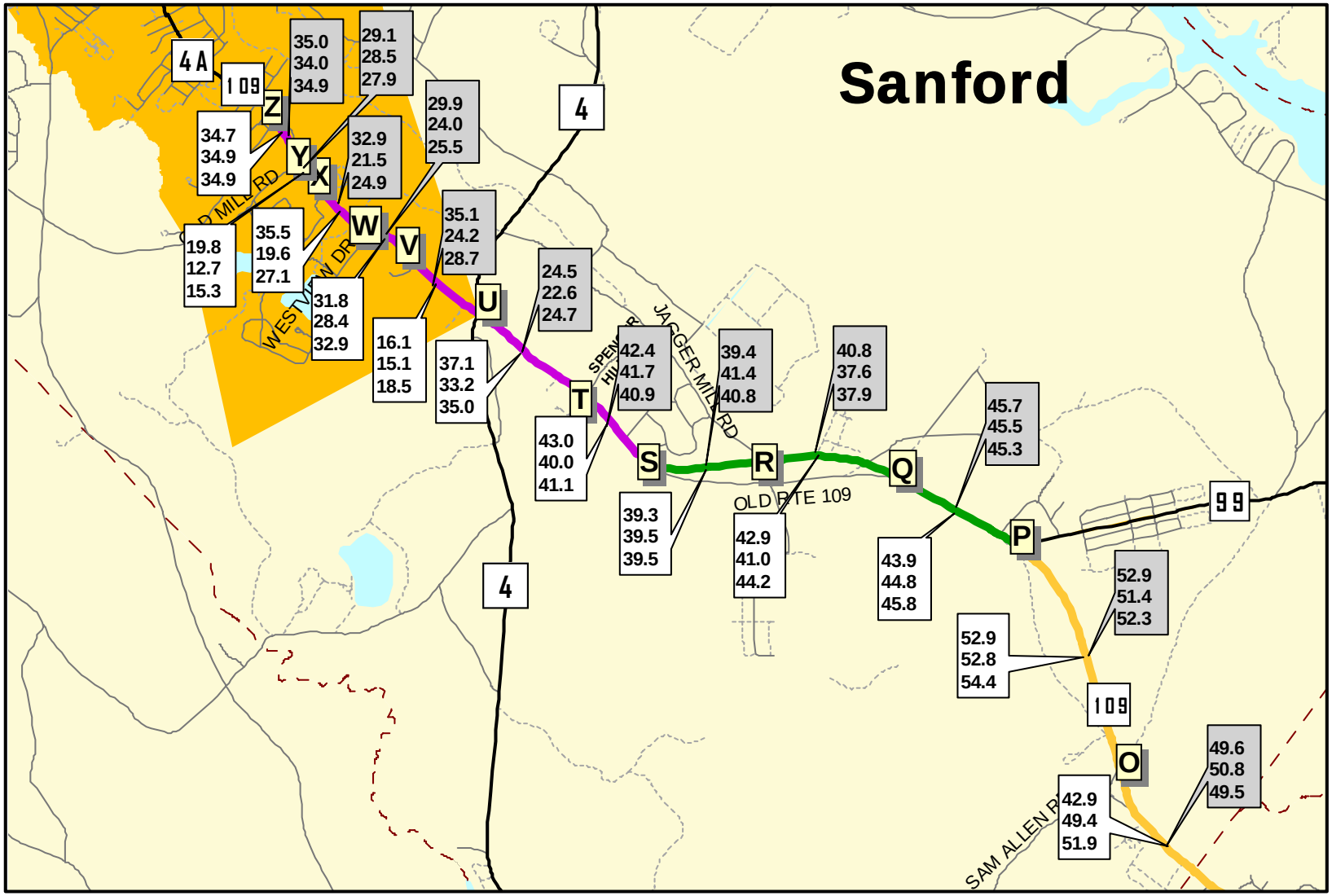
# Traffic Simulation –Existing Cond.

# Level of Service

**<u>Level of Service</u>** – “ Is a qualitative measure describing operational conditions within a traffic stream taking into account a number of variables i.e. speed and travel time, vehicles maneuverability, traffic interruptions, comfort and convenience.”

# Factors Affecting Roadway LOS

- Volume/Composition of Traffic
- Signals
- Access Points




# Route 109 Corridor Study

**Sanford**
**Average Travel Speed**

Posted Speed Limit (mph)
- 35
- 40
- 45
- 50

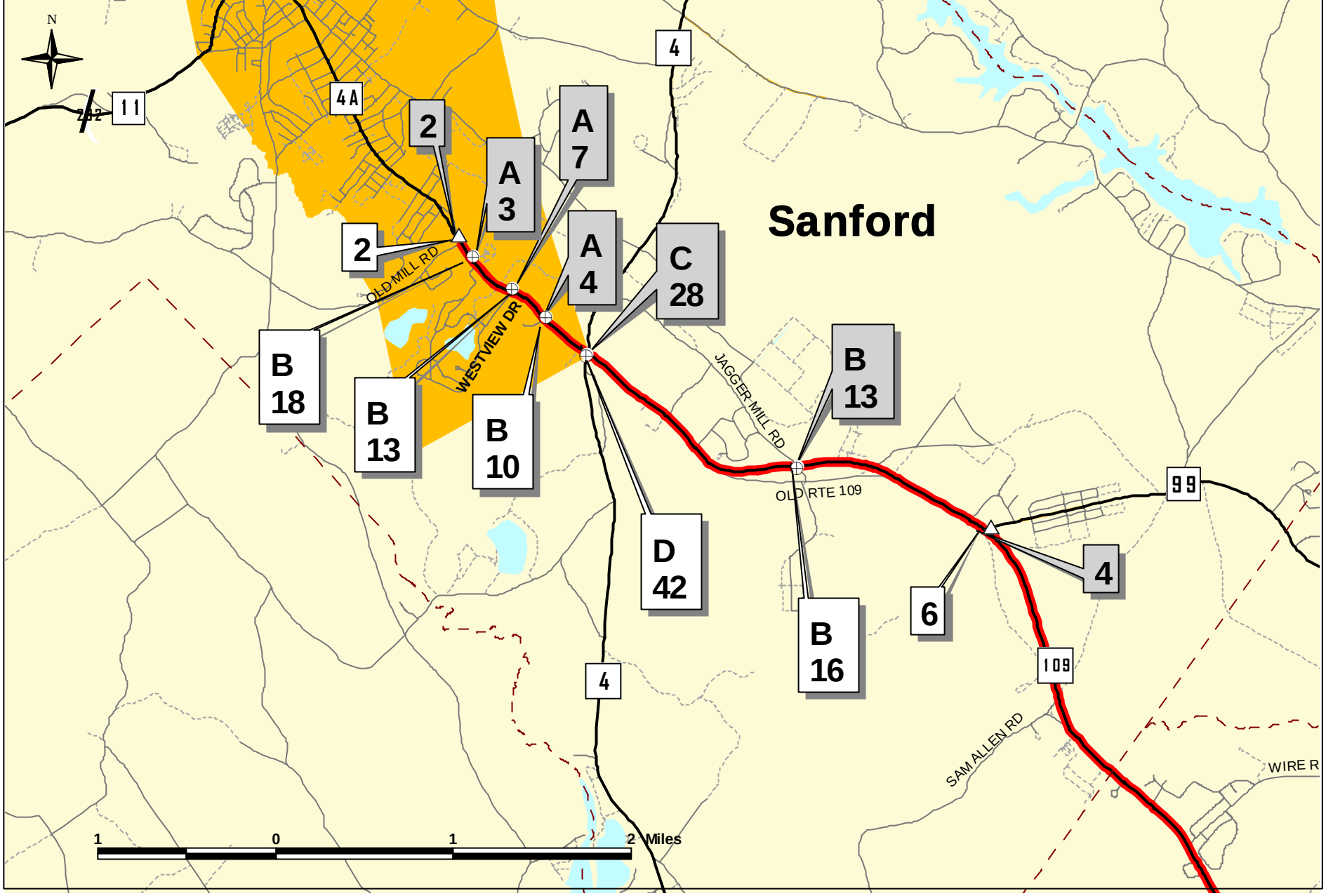
ATS: Average Travel Speed (mph)
- XX Northbound
- XX Southbound

AM Peak ATS
PM Peak ATS
Overall ATS

# Existing Roadway LOS

- Route 99 to Route 4
  - Level of Service “A”
  - Average Travel Speed 37 mph

- Route 4 to Old Mill Road
  - Level of Service “D”
  - Average Travel Speed 21 mph



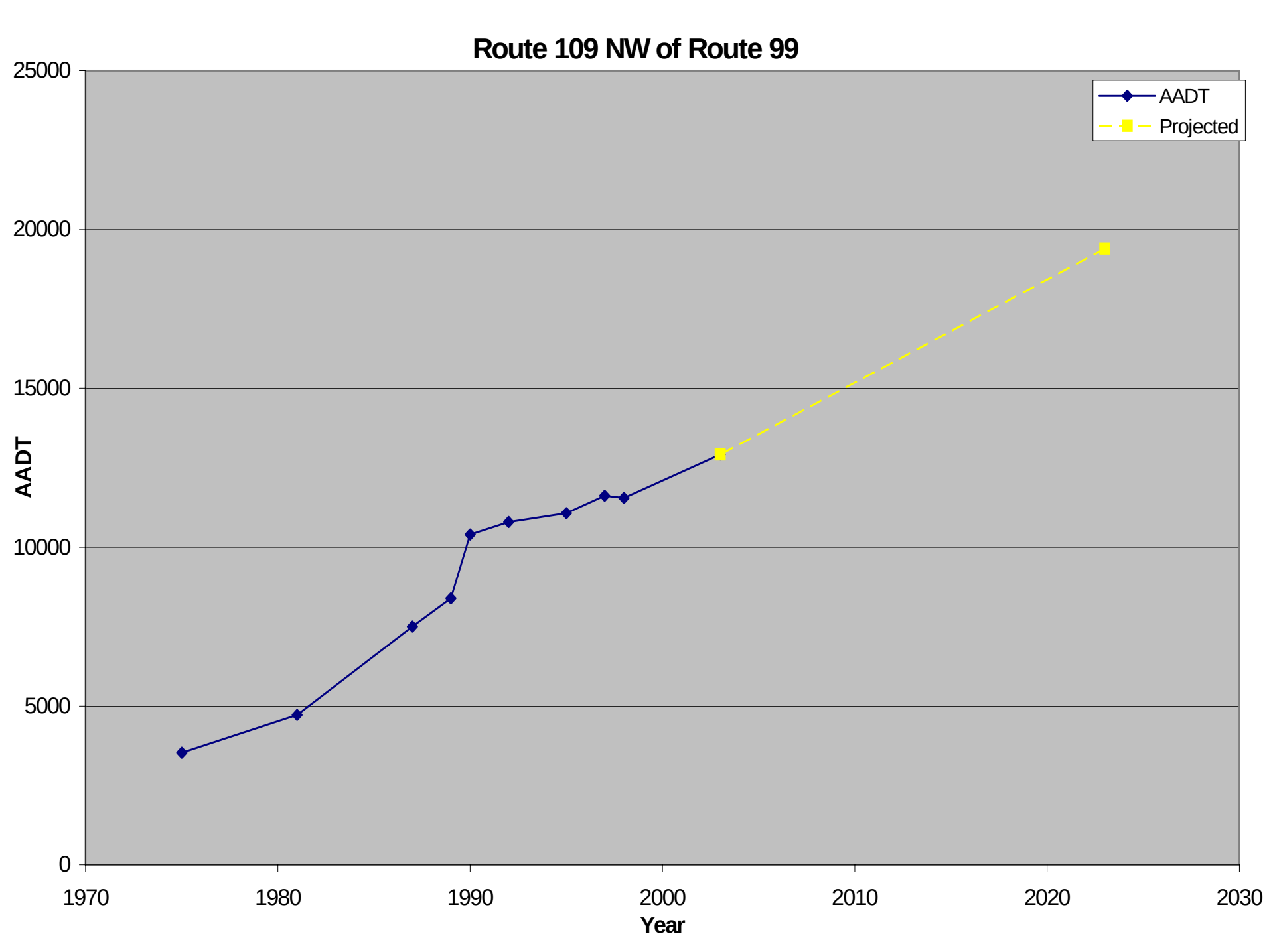

# Route 109 Corridor Study

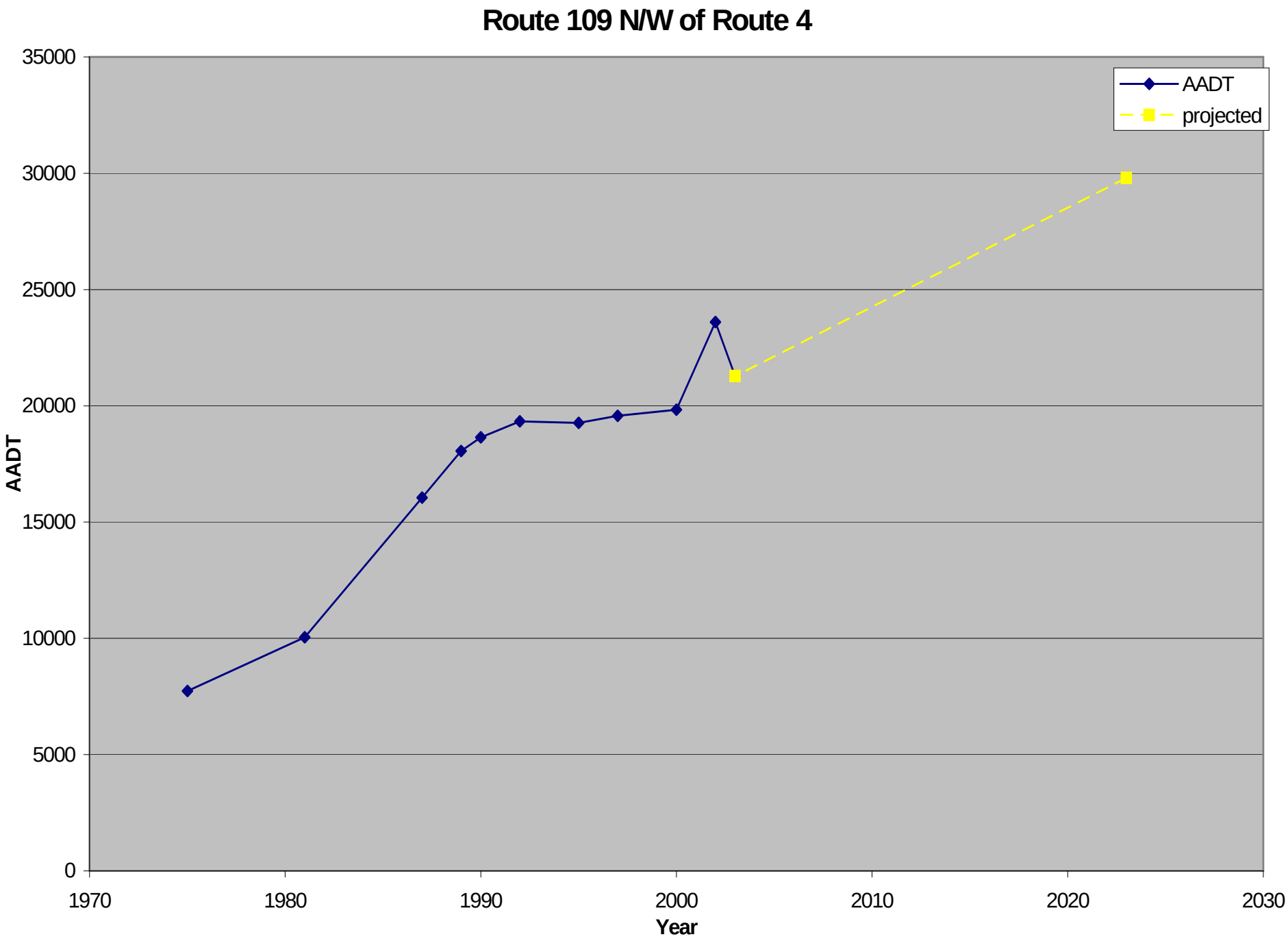
## Overall Delay at Intersections
## 2003 Existing Conditions

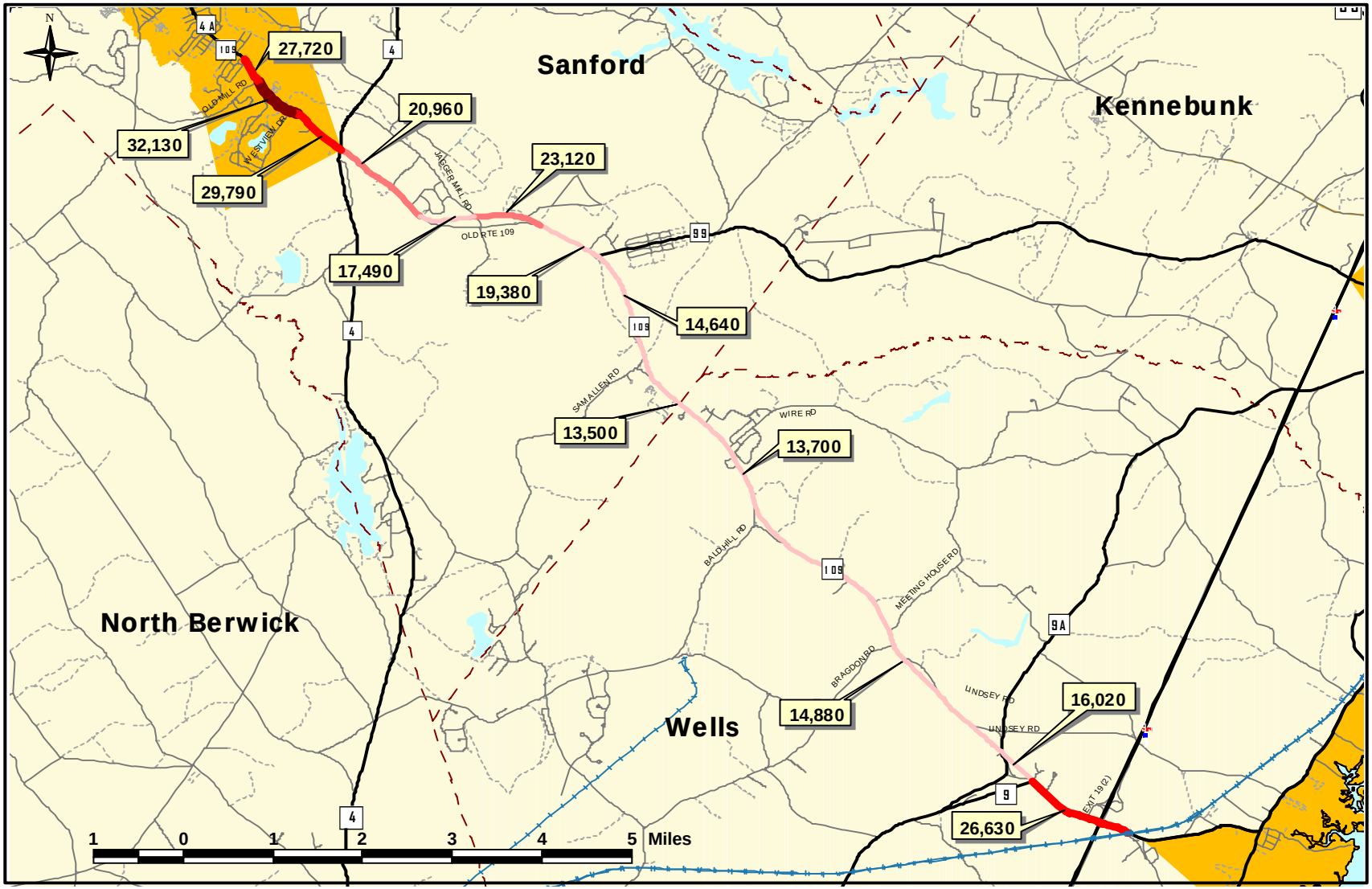
XX AM Peak
XX PM Peak
Study Area

Signalized Intersection
Level of Service
Delay (sec/veh)
Unsignalized Intersection

Figure


Route 109 NW of Route 99
AADT
Projected
25000
20000
15000
10000
5000
0
AADT
1970
1980
1990
2000
2010
2020
2030
Year


Route 109 N/W of Route 4
AADT
projected
35000
30000
25000
20000
15000
10000
5000
0
AADT
1970
1980
1990
2000
2010
2020
2030
Year




# Route 109 Corridor Study

**2023 Average Annual Daily Traffic Volumes**

Daily Traffic

XX,XXX Annual Average

2003 AADT
- 10,000 - 20,000
- 20,000 - 25,000
- 25,000 - 30,000
- 30,000 - 35,000

**Figure**

# Traffic Simulation –Future Conditions No-Build

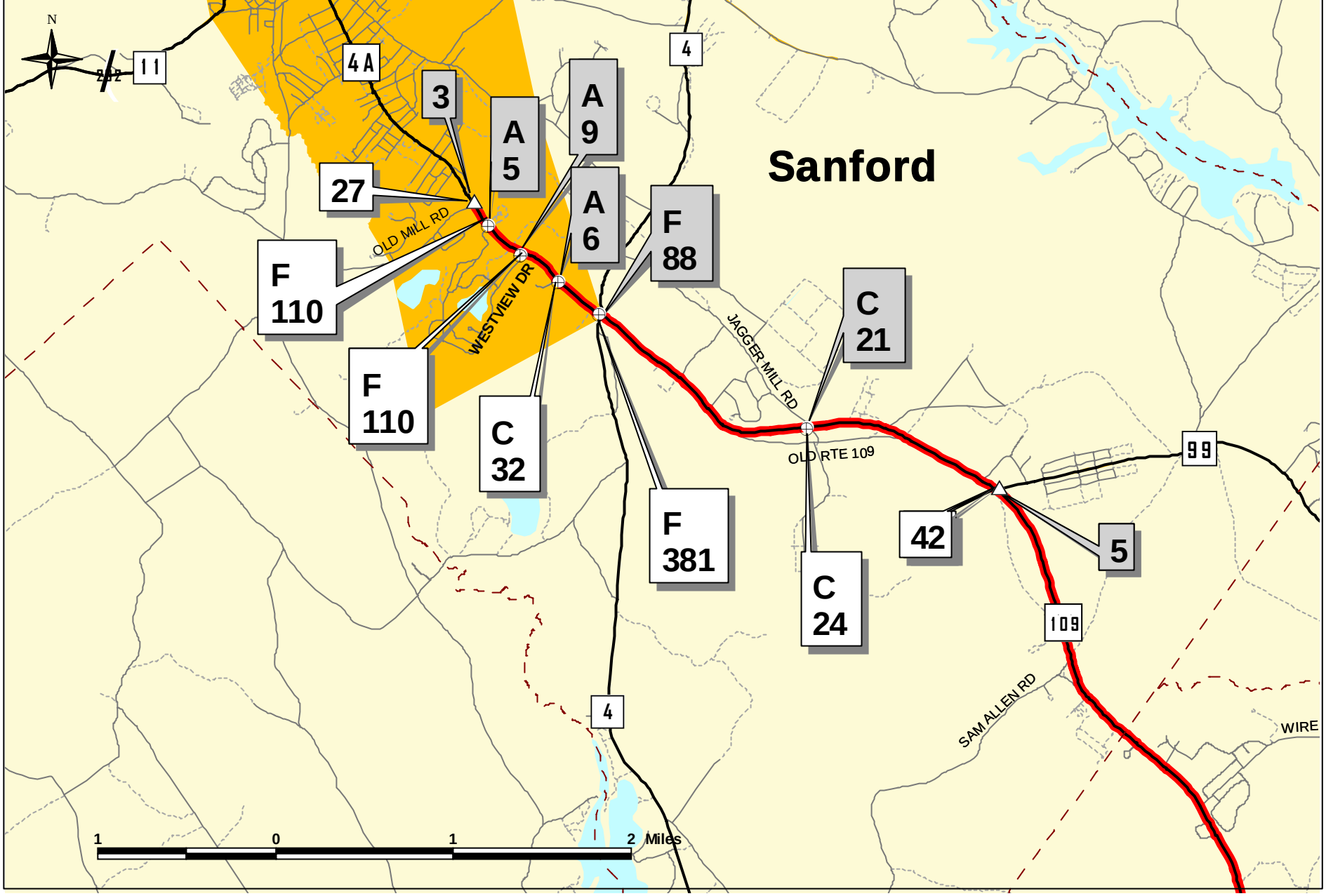
# Assumptions for Future LOS

- Same Number of Access Points
- Increased Volumes
- No New Signals
- No Roadway Improvements

# Future Roadway LOS

- Route 99 to Route 4
  - Level of Service “E”
  - Average Travel Speed 15 mph

- Route 4 to Old Mill Road
  - Level of Service “F”
  - Average Travel Speed 9 mph




# Route 109 Corridor Study

## Overall Delay at Intersections
## 2023 Future Conditions

XX AM Peak
XX PM Peak
Study Area

Signalized Intersection
Level of Service
Delay (sec/veh)
Unsignalized Intersection

Figure

# Sanford Rte 109

- Increase in **vehicle crashes**?
- Accelerated **reduction in roadway efficiency**?
- Uncoordinated **strip development**?
- Degradation of **scenic landscape**?
- More **cut-through in residential areas** due to overburdened arterials?

# Sanford Route 109

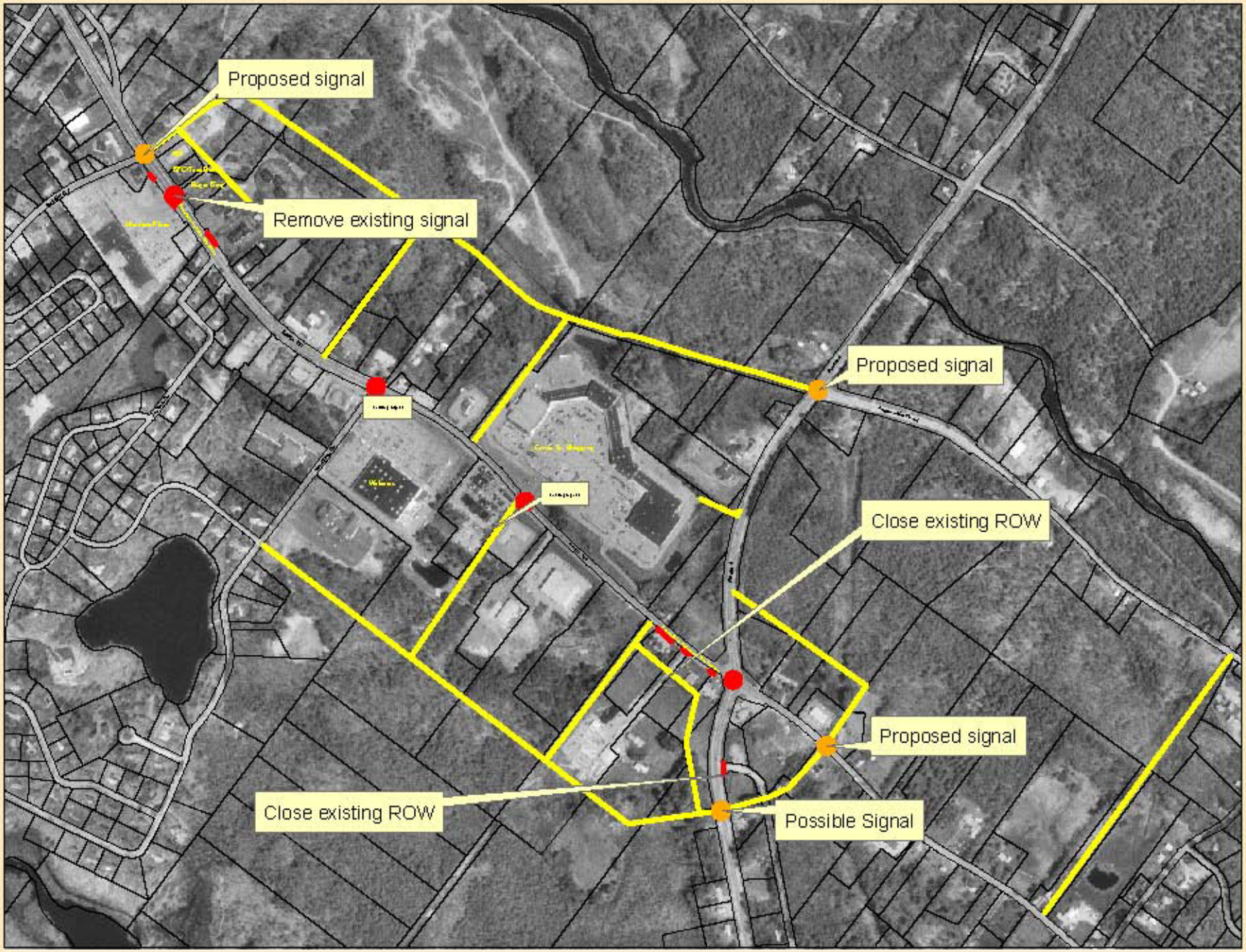
- Have homes and businesses been adversely affected by **widening roads** in the past?  Future?
- **Increased** driver (e.g. commuter time, fuel consumption) and environmental (e.g. vehicular emissions) **cost** as numerous driveways and traffic signals intensify congestion and delays along the road?

# Sanford Route 109

- **Is access to corner businesses blocked** by queuing traffic?
- Are newer businesses seeking out locations that are more attractive and have fewer access and congestion problems?
- Are customers beginning to patronize businesses with safer, more convenient access?

# Show DVD on Access Management

# Proposed New Access Roads -- Route 109 Sanford




Produced by Southern Maine RPC, 1993

0 350 700 1,400 2,100 2,800 Feet

# ITE Trip Generation

| Land Use | % of Total | # of Acres | Trips/Acre | # of Trips | % Enter | # Enter | % Exit | # Exit |
|---|---|---|---|---|---|---|---|---|
| Retail | 50 | 88.3 | 15.5 | 1,369 | 48 | 657 | 52 | 712 |
| Residential | 25 | 44.2 | 2.7 | 121 | 66 | 80 | 44 | 41 |
| Office Park | 10 | 17.7 | 28.3 | 499 | 15 | 75 | 85 | 425 |
| Business Park | 15 | 26.5 | 16.8 | 446 | 20 | 89 | 80 | 357 |
| Total | | 176.6 | | **2,435** | | 901 | | 1,534 |

# Trip Distribution

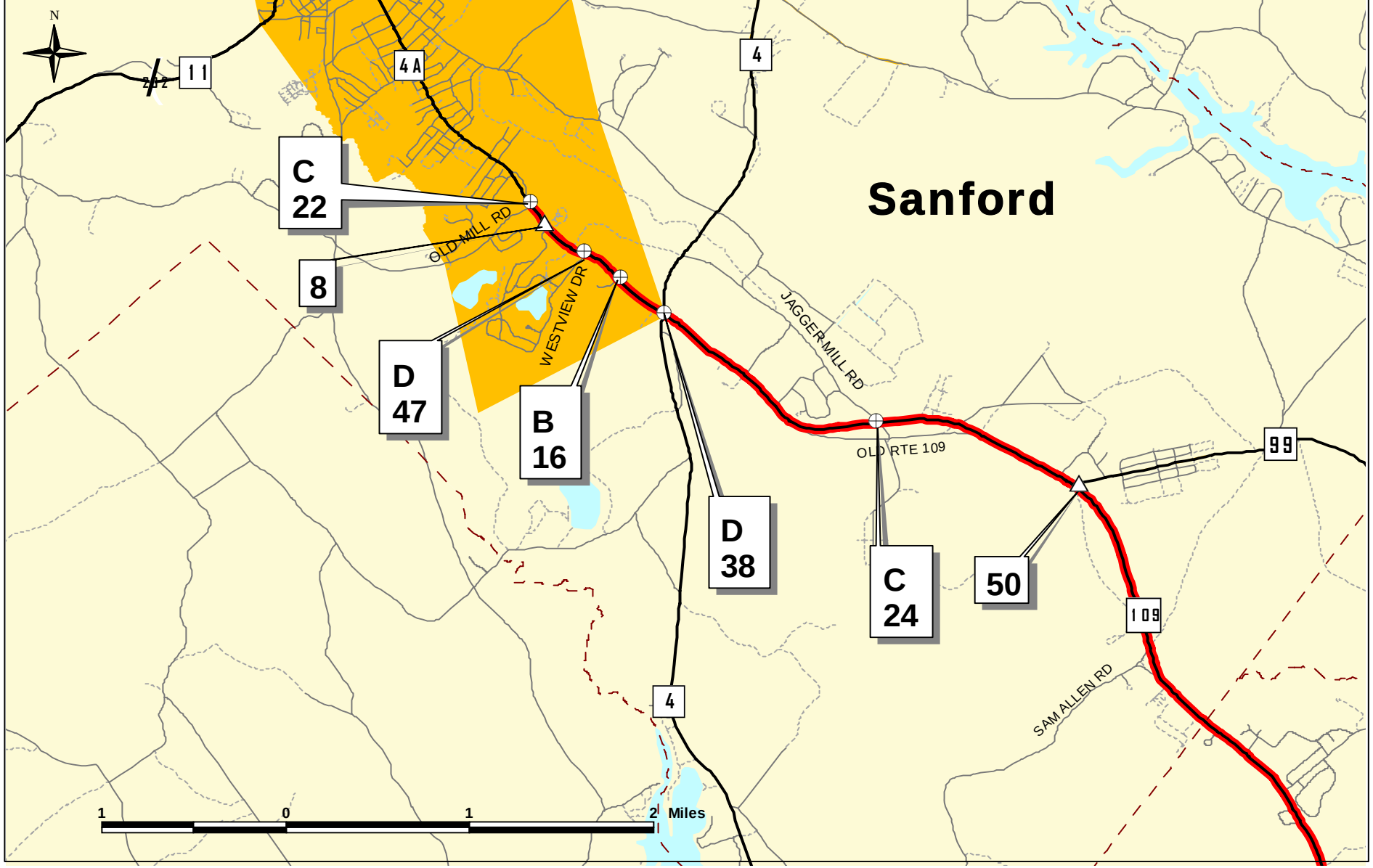
| | AADT | % | PM | K Factor | % |
|---|---|---|---|---|---|
| Location | | | DHV | | |
| | | | | | |
| Rte 109 n/o Old Mill | 19,800 | 29% | 1,584 | 8% | 23% |
| Old Mill Road | 4,690 | 7% | 284 | 6% | 4% |
| Rte 4 w/o Rte 109 | 13,970 | 21% | 1,063 | 8% | 15% |
| Rte 4 e/o Rte 109 | 10,880 | 16% | 990 | 9% | 14% |
| Rte 109 s/o Rte 4 | 13,970 | 21% | 1,026 | 7% | 15% |
| Jagger Mill Rd | 3,830 | 6% | 371 | 10% | 5% |
| Shopping Areas | | | 1,720 | | 24% |
| | 67,140 | 100% | 7,038 | | 100% |

# Traffic Simulation –Future Conditions w/ Improvements & Access Roads

# Future Roadway LOS

- Route 99 to Route 4
  - Level of Service “B”
  - Average Travel Speed 34 mph

- Route 4 to Old Mill Road
  - Level of Service “D”
  - Average Travel Speed 18 mph




# Route 109 Corridor Study

**Overall Delay at Intersections**
**2023 Future Conditions**
**with Improvements at Rte 4**
**and North of Rte 4**

XX PM Peak

Study Area

Signalized Intersection

Level of Service
Delay (sec/veh)

Unsignalized Intersection

Delay (sec/veh)

**Figure**

# Augusta Western Ave

- Augusta AADT (2003) 28,290 4-Lanes
- Sanford  AADT (2003) 22,950
- Raised Island (Armory to NAPA – 0.25 Mi)
  - **7** Reported Crashes on Links (2001-2003)
  - Injury Type: 0 K, 0A, **0B**, **1C** and 5 PD
- No Island (NAPA to VIP – 0.22 Mi)
  - **31** Reported Crashes on Links (2001-2003)
  - Injury Type: 0 K, 0A, **4B**, **6C** and 21 PD