# SECTION 1 - BASELINE CONDITIONS

## INTRODUCTION

In order to address the congestion-related issues in the Argonne Corridor, it is necessary to fully comprehend the baseline issues as they exist for Argonne Road in its current configuration today, and ahead into the future planning horizon. The baseline conditions were developed by obtaining and reviewing:

- Relevant transportation and development impact studies, and other regional and local transportation plans and economic data
- Available traffic volume data for the study area based on development traffic studies and regional transportation plans
- Traffic signal operational parameters for existing signals on Argonne Road
- Accident reports
- Local and regional access and circulation
- Spokane Transit Authority (STA) service and operations
- Non-motorized mobility conditions
- Business, community and regional access, including freight
- Union Pacific Railroad volumes through Millwood, along with current railroad signal pre-emption operation at Argonne Road
- Site reconnaissance to ascertain and inventory the physical roadway, deficiencies and opportunities

Current AM and PM peak hour operations along Argonne Road were analyzed using Synchro traffic operations software. In addition, the context of the corridor was evaluated within the entirety of the Millwood roadway system to provide a full understanding of the operation of the corridor and its impacts to the Town.

This section summarizes the existing and future baseline conditions for the Argonne Road corridor within the Town of Millwood.

## EXISTING CONDITIONS

### Physical Context

Argonne Road is a 4-lane primary north-south route that provides one of only three vehicle crossings over the Spokane River east of the City of Spokane. The Argonne Road corridor connects Spokane County to I-90 and to the City of Spokane Valley. The focus of this study is the 0.6 mile segment that extends from the Spokane River (E South Riverway) to E Trent Avenue and includes the following intersections:

- E South Riverway
- E Liberty Avenue
- E Frederick Avenue
- E Buckeye Avenue
- E Bridgeport Avenue
- E Dalton Avenue
- E Grace Avenue
- E Trent Avenue

**Figure 1-1** shows the context of the Argonne Road corridor within the Town of Millwood.

## Adjacent Land Use

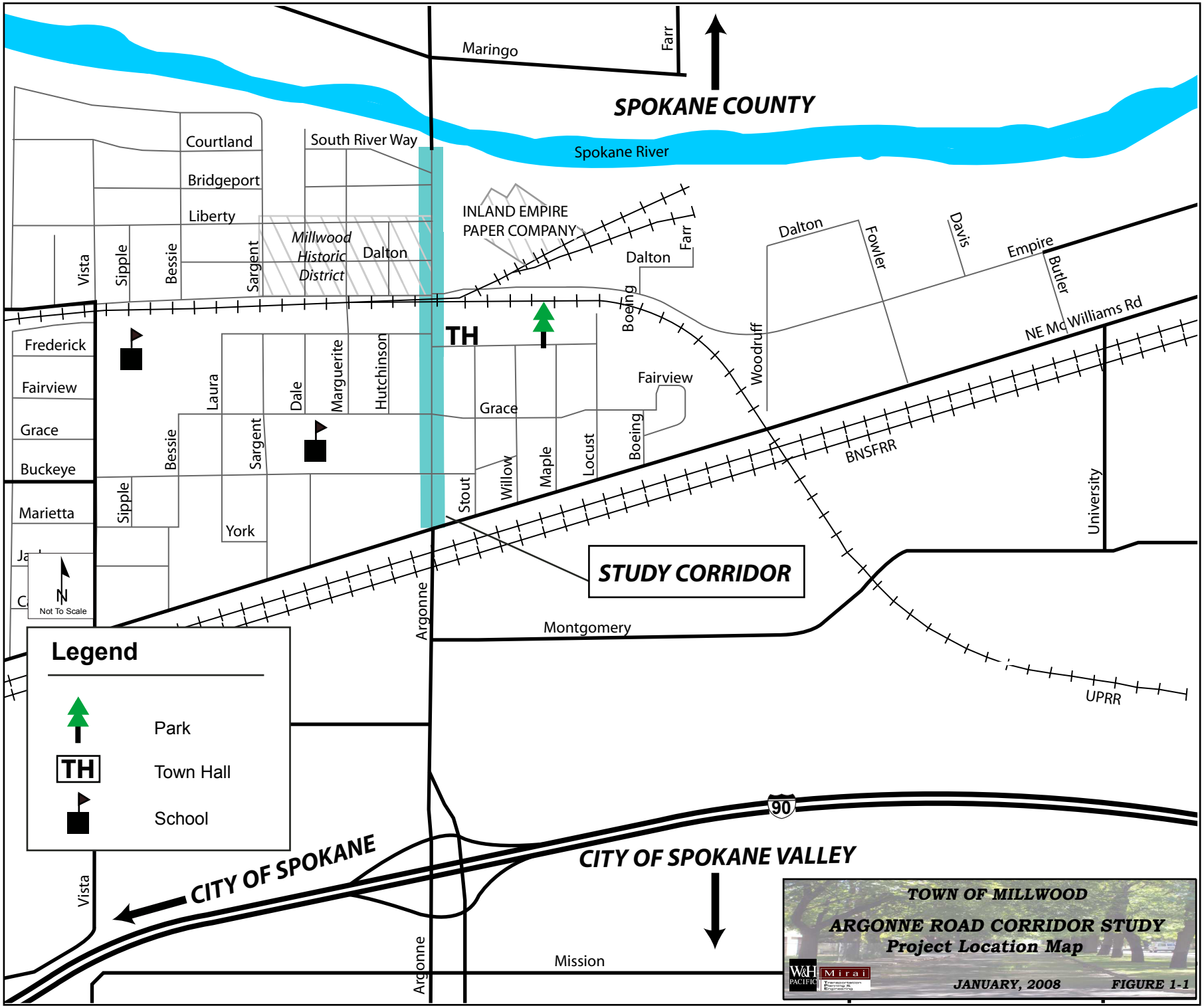
Retail, commercial and professional office uses flank Argonne Road (see adjacent photos). Many small businesses reside in converted homes particularly in the southern portion of the corridor. The Inland Empire Paper Mill, located in the northeast portion of the corridor, is one of the most prominent commercial features along Argonne Road. Other uses include the Albertson's/Walgreen's retail area at E Trent Avenue and residential homes one block adjacent to Argonne Road to the east and west. The Town of Millwood's historical district is located along Argonne Road, between Euclid and Liberty. Commercial buildings within these two blocks are listed on the National Register of Historic Places and the Washington State Heritage Register.

## Parking and Property Access

Argonne Road has a width of 44 feet from just north of E Buckeye Avenue to E Euclid/Empire Avenue, without room for on-street parking. Between E Euclid Avenue and E Liberty Avenue, the width increases to 54 feet allowing for a small stretch of parallel parking spaces along the west side of Argonne Road (see adjacent photo). This on-street parking is highly valued due to its proximity to the historical business district.

Along the rest of the corridor, most buildings have on-site parking with driveways that directly access Argonne Road. This creates a number of curb cuts along through the sidewalks that makes pedestrian activity difficult and creates conflicts between vehicles entering and exiting the roadway. In addition to the number of curb cuts along Argonne Road, there are a number of business accesses with wide and/or poorly defined access points.

There is formalized, head-in parking areas located along some of the intersecting roadways within the corridor. Along E Frederick, parking has been installed just out of the right-of-way to accommodate parking for the coffee shop (west of Argonne) and for the Millwood City Hall, Fire Station, and City Park (east side of Argonne). Along Euclid Ave (west of Argonne), there is head-in parking along the south side of the street, and parallel parking along the north side (see adjacent photo). This parking area is valuable to the businesses contained within the historic buildings along Argonne and Euclid, as well as for the Wednesday Public Markets located at the Church during the summer.

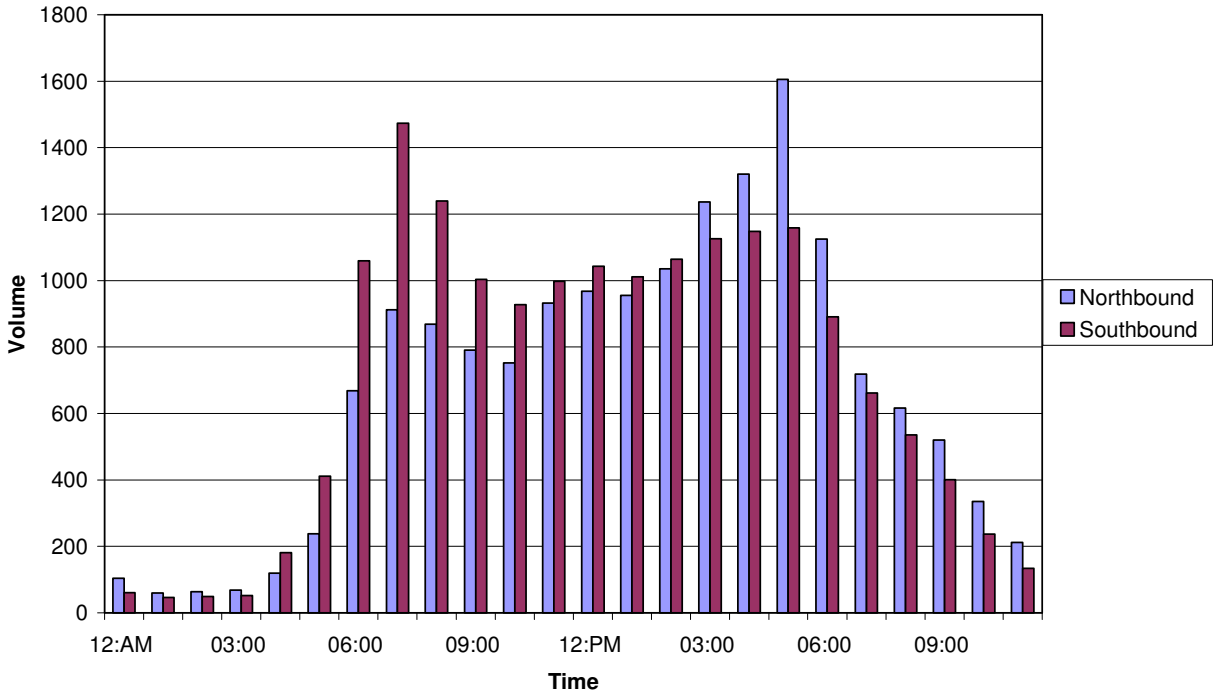

SPOKANE COUNTY
Spokane River
Maringo
Farr
Courtland
Bridgeport
Liberty
South River Way
Millwood Historic District
Dalton
INLAND EMPIRE PAPER COMPANY
Vista
Sipple
Bessie
Sargent
Frederick
Fairview
Grace
Buckeye
Marietta
Laura
Dale
Marguerite
Hutchinson
TH
Boeing
Woodruff
Fowler
Davis
Empire
Butler
NE Mc Williams Rd
Stout
Willow
Maple
Locust
York
BNSFRR
University
STUDY CORRIDOR
Argonne
Montgomery
UPRR
Not To Scale
Legend
Park
Town Hall
School
90
CITY OF SPOKANE
CITY OF SPOKANE VALLEY
Mission
TOWN OF MILLWOOD
ARGONNE ROAD CORRIDOR STUDY
Project Location Map
JANUARY, 2008
FIGURE 1-1

## Traffic Volumes and Circulation

### *Hourly Volumes*

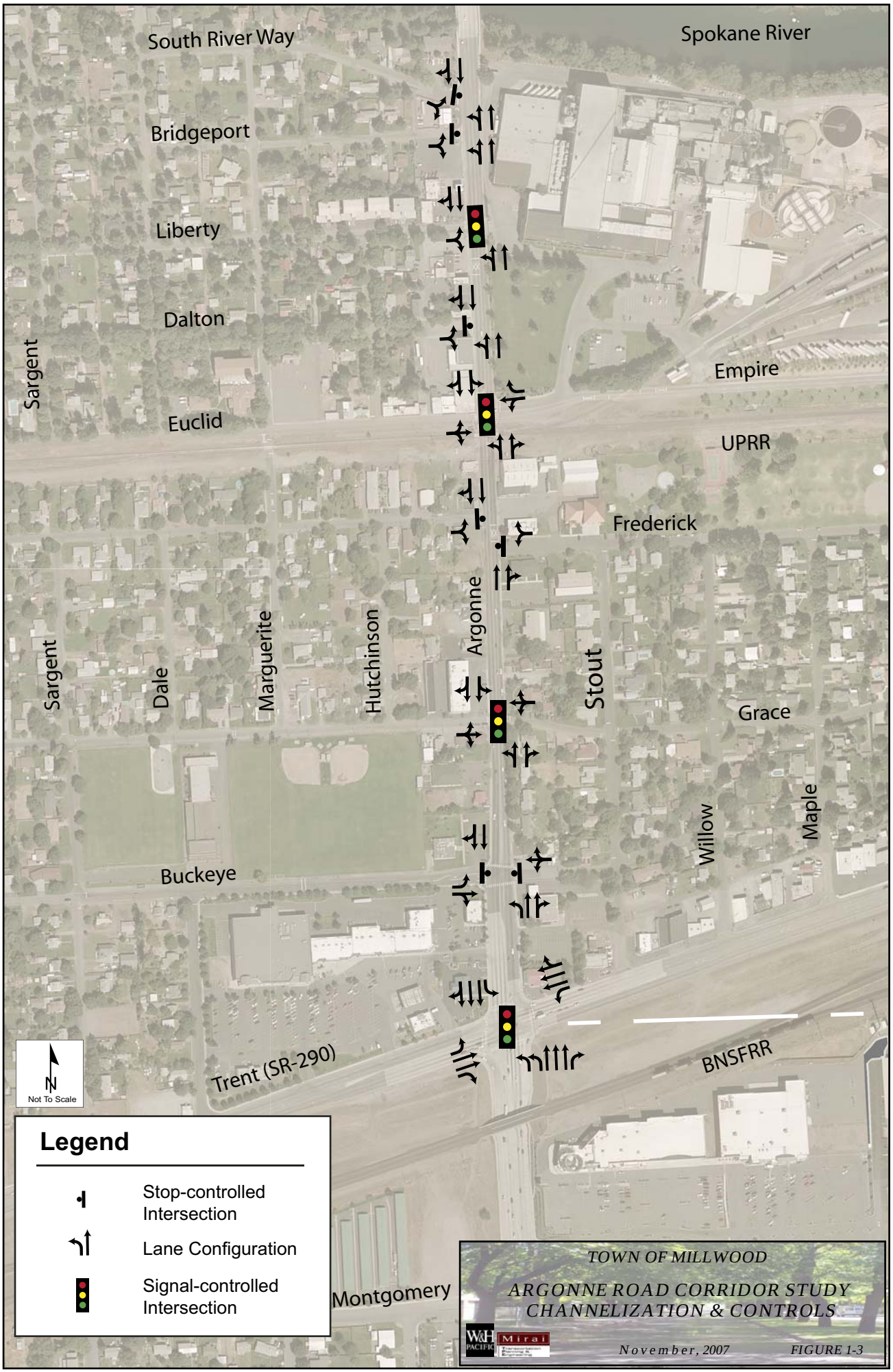
Traffic on Argonne Road shows significant directional peak volumes, southbound in the morning peak and northbound in the evening peak. Mid-day traffic is approximately equal, southbound and northbound, between 11 am and 3 pm. Overall daily traffic is over 33,000 vehicles per day with a fairly even split between northbound and southbound volumes. Traffic volume data used in this analysis was collected in May 2007 to reflect typical corridor operations during the school year. The peak periods occur between 7 am and 8 am with predominately a southbound traffic flow, and between 5 pm and 6 pm in the evenings with predominately a northbound traffic flow. At the height of the evening commute, nearly 2,800 vehicles travel through the corridor during a single hour. **Figure 1-2** shows the traffic volumes by hour for Argonne Road north of Buckeye Avenue.

Figure 1-2. Argonne Road Hourly Directional Volumes North of E Buckeye Avenue




### *Circulation Patterns*

Review of turning volumes at corridor intersections provides information of activity and circulation patterns. Over 60 percent of the corridor's volume travels the entire length of Argonne from Trent Avenue to the river during the PM peak hour, indicating the significance of the corridor as a regional route. The general configuration of the corridor – a four-lane roadway with two through lanes in each direction without turn pockets – emphasizes and encourages through travel and discourages turning movements. **Figure 1-3** shows the channelization and traffic control devices along the Argonne Road corridor.


South River Way
Spokane River
Bridgeport
Liberty
Dalton
Sargent
Euclid
Empire
UPRR
Frederick
Argonne
Sargent
Dale
Marguerite
Hutchinson
Stout
Grace
Willow
Maple
Buckeye
Trent (SR-290)
BNSFRR
Montgomery
N
Not To Scale
Legend
Stop-controlled Intersection
Lane Configuration
Signal-controlled Intersection
TOWN OF MILLWOOD
ARGONNE ROAD CORRIDOR STUDY
CHANNELIZATION & CONTROLS
November, 2007
FIGURE 1-3

## AM Peak Hour

Intersections with the highest level of turning movements are currently signalized. **Figure 1-4** shows the major circulation patterns for Argonne Road during the AM peak hour. Primary circulation patterns of the corridor during the AM peak hour include (with more than 50 trips):

- From east to north: E Trent Avenue (150 trips)
- From west to north: E Liberty Avenue (57 trips)
- From east to south: E Trent Avenue (230 trips)
- From west to south: E Trent Avenue (323 trips)
- From south to west: E Trent Avenue (425 trips) and E Buckeye (86 trips)
- From south to east: E Trent Avenue (97 trips)
- From north to east: E Trent Avenue (200 trips)

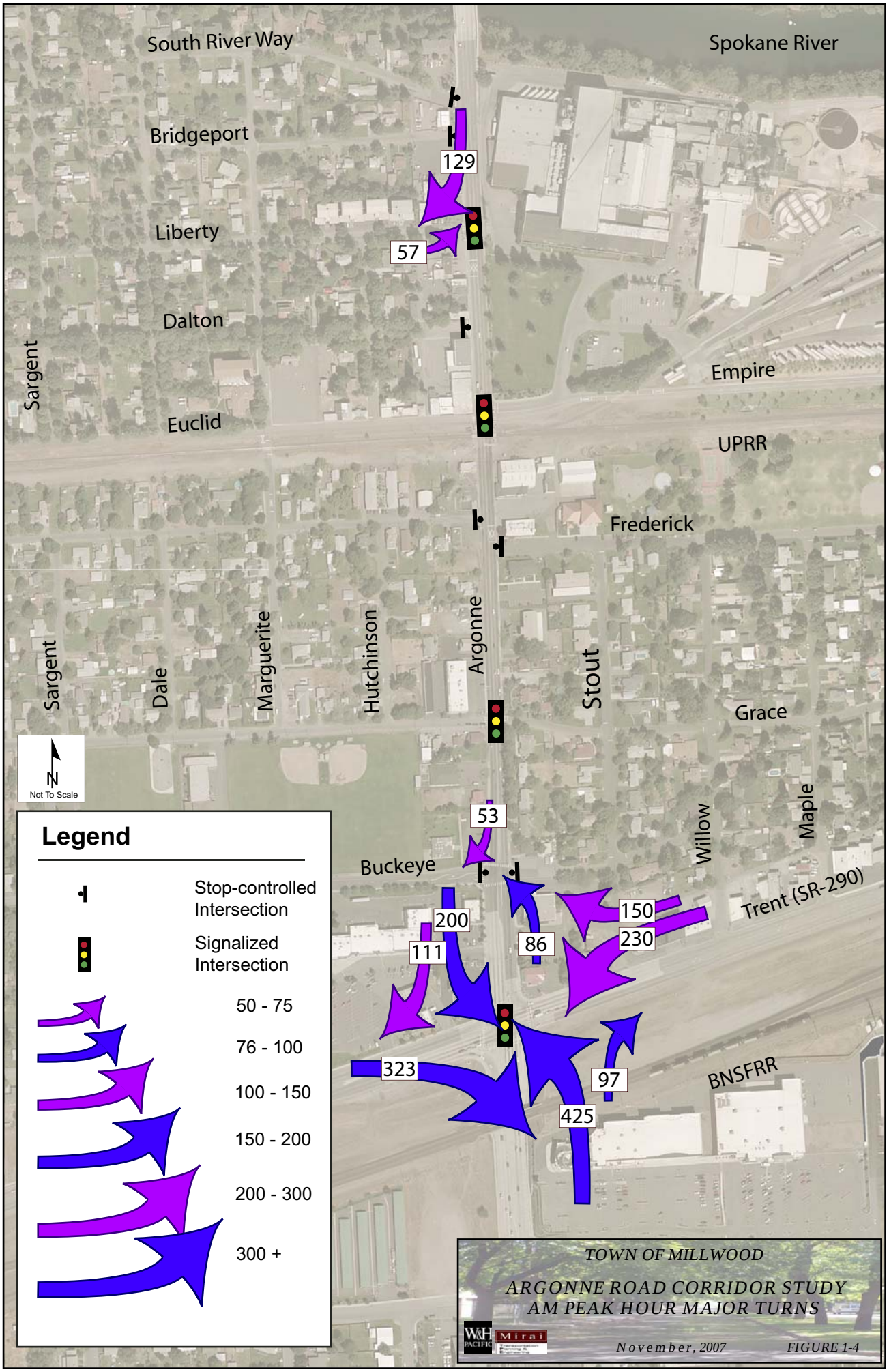
During the morning commute, most vehicle turns occur at Trent, Liberty and Buckeye Avenues with much lower activity at other intersections. Traffic signals and turn lanes at these intersections may make these locations favorite locations. E Liberty Avenue had a high turn movement against the peak movement (west to north), indicating the importance of this roadway for circulation within the Town, including access to West Valley High School.

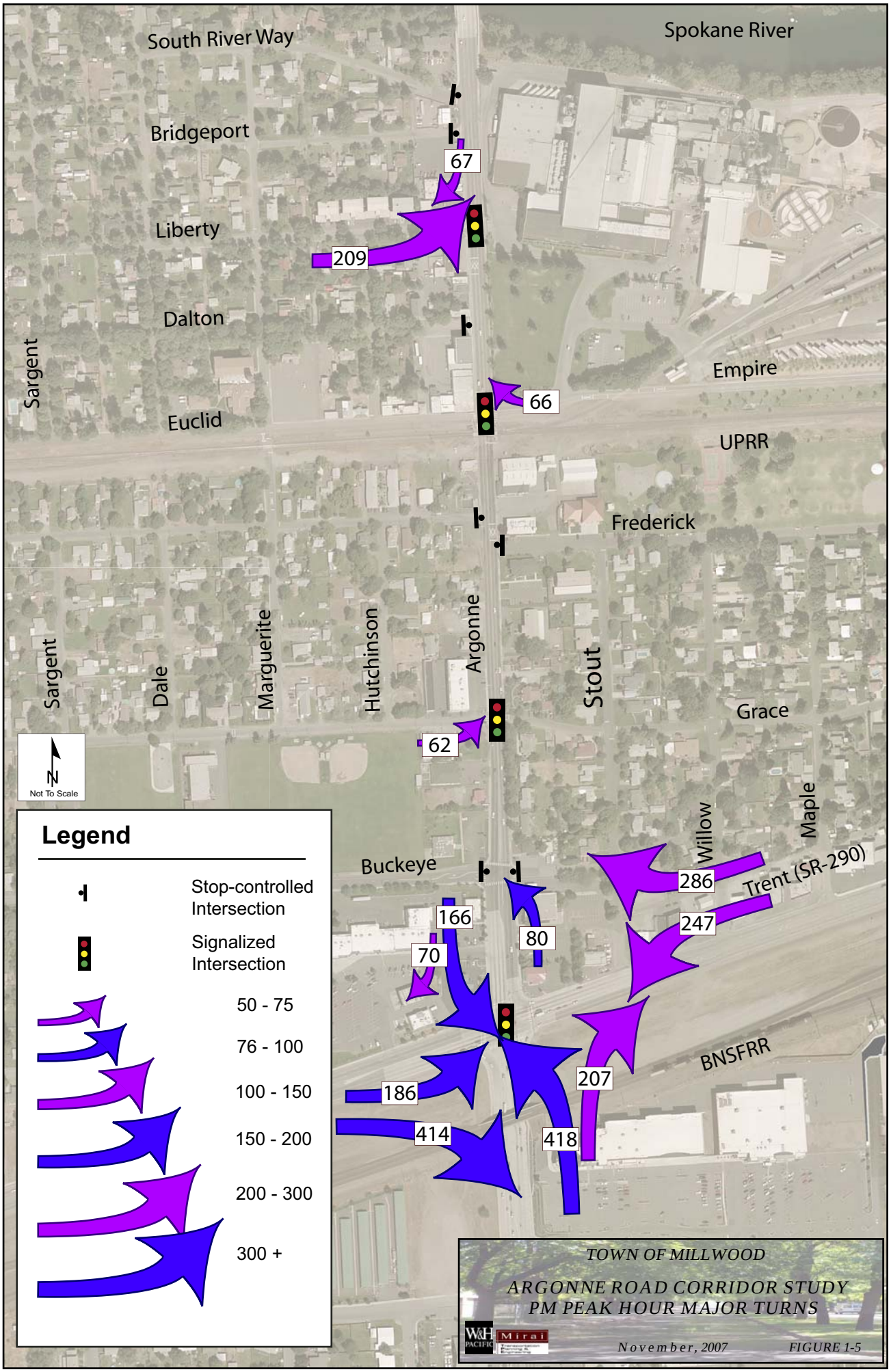
## PM Peak Hour

During the PM peak hour, as a percentage of trips, there are few turning movements onto or off of the corridor. In the peak direction, only 16% of trips on Argonne Road do not continue across the bridge. Primary movements (more than 50 peak hour trips) locations along the corridor during the PM peak hour include:

- From east to north: E Trent Avenue (286 trips) and E Empire Avenue (66 trips)
- From west to north: E Liberty Avenue (209 trips), E Trent Avenue (186 trips) and E Grace Avenue (62 trips)
- From south to west: E Trent Avenue (418 trips) and E Buckeye (80 trips)
- From south to east: E Trent Avenue (207 trips)
- From north to east: E Trent Avenue (166 trips)

During the PM peak hour, most vehicle turns occur at Trent, Empire, Liberty and Buckeye Avenues with much lower activity at other intersections. The presence of traffic signals and turn lanes may make these locations preferred over other locations. **Figure 1-5** shows the major circulation patterns for Argonne Road during the PM peak hour.


South River Way
Spokane River
Bridgeport
129
Liberty
57
Dalton
Sargent
Empire
Euclid
UPRR
Frederick
Sargent
Dale
Marguerite
Hutchinson
Argonne
Stout
Grace
Not To Scale
53
Willow
Maple
Buckeye
Trent (SR-290)
200
150
230
111
86
323
97
425
BNSFRR
Legend
Stop-controlled Intersection
Signalized Intersection
50 - 75
76 - 100
100 - 150
150 - 200
200 - 300
300 +
TOWN OF MILLWOOD
ARGONNE ROAD CORRIDOR STUDY
AM PEAK HOUR MAJOR TURNS
November, 2007
FIGURE 1-4


South River Way
Spokane River
Bridgeport
67
Liberty
209
Dalton
Sargent
Empire
66
Euclid
UPRR
Frederick
Sargent
Dale
Marguerite
Hutchinson
Argonne
Stout
Grace
62
Not To Scale
Legend
Stop-controlled Intersection
Signalized Intersection
50 - 75
76 - 100
100 - 150
150 - 200
200 - 300
300 +
Buckeye
Willow
Maple
286
Trent (SR-290)
247
166
80
70
BNSFRR
207
186
414
418
TOWN OF MILLWOOD
ARGONNE ROAD CORRIDOR STUDY
PM PEAK HOUR MAJOR TURNS
November, 2007
FIGURE 1-5

## Intersection Operations

Level of Service (LOS) is a measure of the quality of traffic operations at an intersection. LOS uses an A to F scale, with LOS A representing minimal traffic delays and LOS F representing severe congestion and long delays. The LOS is the measured average control delay per vehicle and is reported for the worst movement, if a study intersection is unsignalized or for the overall average of all approaches if it is signalized. The consultant used the traffic counts collected for this study to calculate the LOS for intersections along Argonne Road. **Table 1-1** indicates the LOS definitions for signalized and unsignalized intersections.

### Table 1-1. Level of Service Definitions

| LOS | Signalized Delay per Vehicle (sec/veh) | Unsignalized Delay per Vehicle (sec/veh) |
|---|---|---|
| A | 0-10 | 0-10 |
| B | >10-20 | >10-15 |
| C | >20-35 | >15-25 |
| D | >35-55 | >25-35 |
| E | >55-80 | >35-50 |
| F | >80 | >50 |

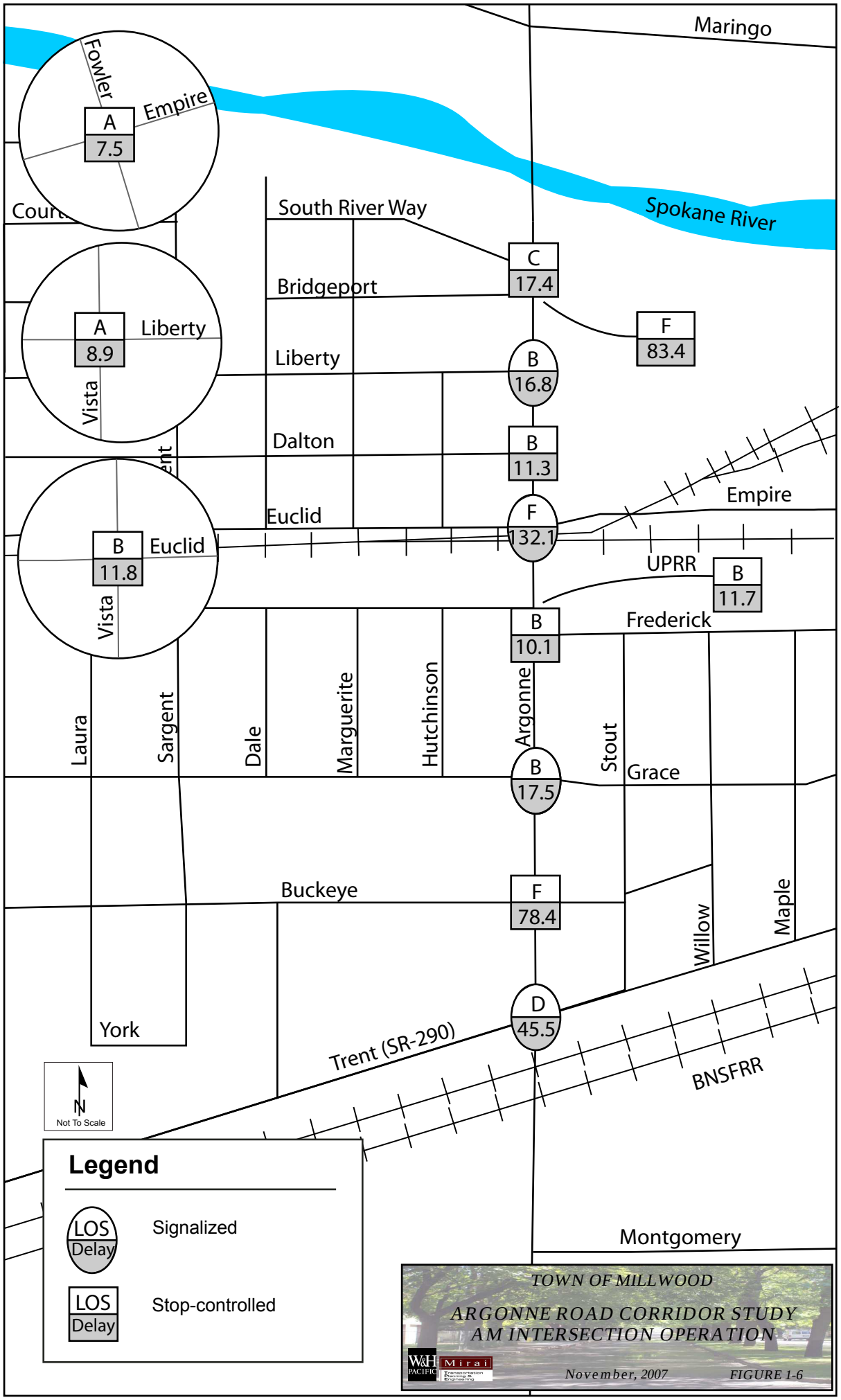
*Source: Highway Capacity Manual (HCM 2000, Transportation Research Board)*

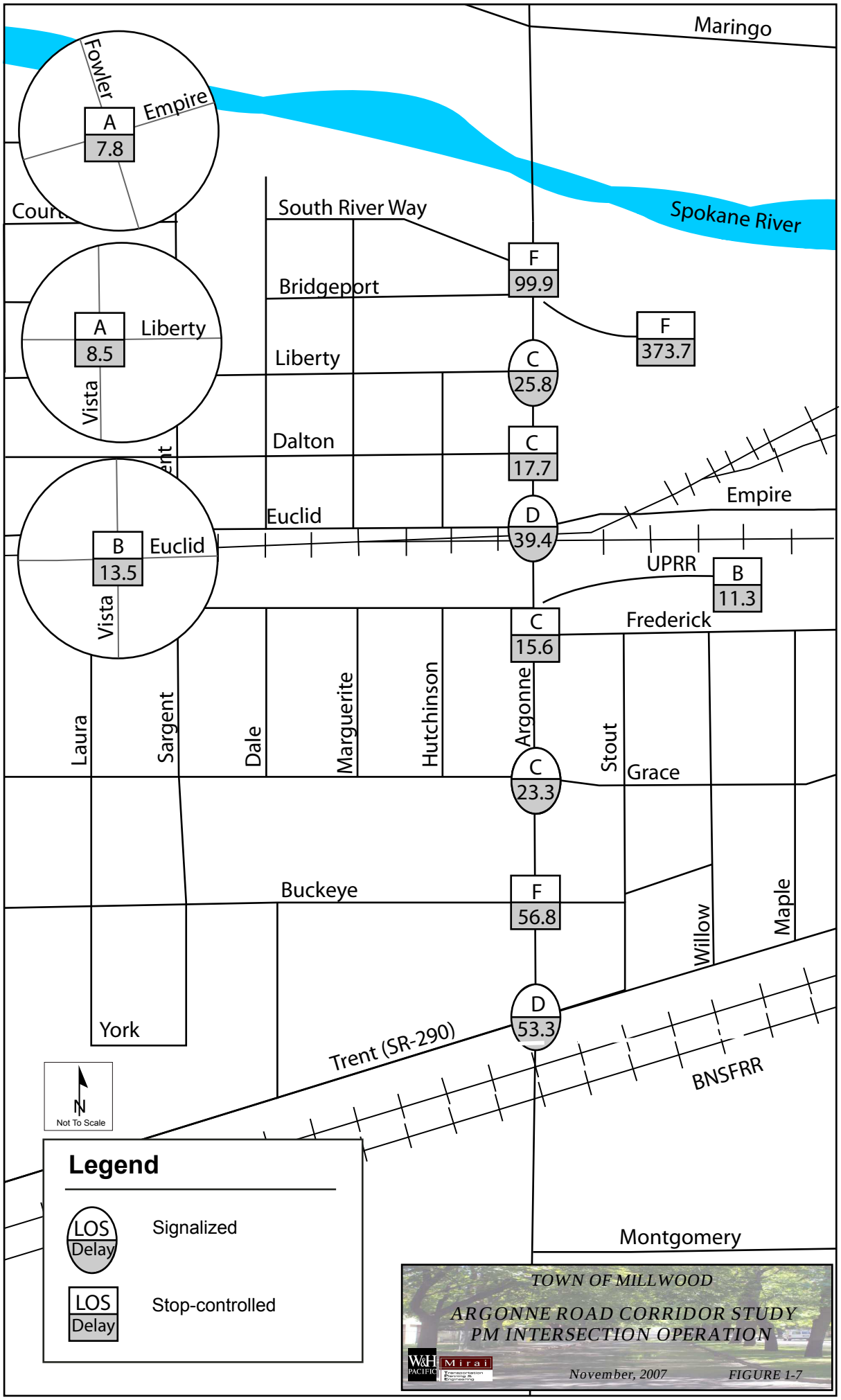
High volumes of through traffic on Argonne Road make it very difficult for side street traffic to enter or cross Argonne Road, unless there is a signal at the intersection. Locations that operate at LOS F during the AM peak hour include the intersections at E Euclid Avenue, E Bridgeport Avenue and E Buckeye Avenue. During the PM peak hour, South Riverway Avenue, E Bridgeport Avenue and E Buckeye Avenue operate at LOS F. **Table 1-2** shows the existing intersection LOS operation during the AM and PM peak hours. **Figure 1-6** shows the LOS for the AM peak hour and **Figure 1-7** shows the Level of Service (LOS) for the PM peak hour.

## Table 1-2. Intersection AM and PM Peak Hour Delay and Level of Service by Approach

| | Street Name | Control Type | Total | |
|---|---|---|---|---|
| | | | Delay | LOS |
| AM Peak | E South Riverway Ave / N Argonne Rd | U | 17.4 | C |
| | E Bridgeport Ave / N Argonne Rd | U | 83.4 | F |
| | E Liberty Ave / N Argonne Rd | S | 16.8 | B |
| | E Dalton Ave / N Argonne Rd | U | 11.3 | B |
| | E Euclid Ave / N Argonne Rd | S | 132.1 | F |
| | E Frederick Ave / N Argonne Rd (N) | U | 11.7 | B |
| | E Frederick Ave / N Argonne Rd (S) | U | 10.1 | B |
| | E Grace Ave / N Argonne Rd | S | 17.5 | B |
| | E Buckeye Ave / N Argonne Rd | U | 78.4 | F |
| | E Trent Ave / N Argonne Rd | S | 45.5 | D |
| | E Empire Ave / E Fowler Rd | A | 7.5 | A |
| | E Liberty Ave / E Vista Rd | A | 8.9 | A |
| | E Euclid Ave / Vista Rd | U | 11.8 | B |
| | | | | |
| PM Peak | E South Riverway Ave / N Argonne Rd | U | 99.9 | F |
| | E Bridgeport Ave / N Argonne Rd | U | 373.7 | F |
| | E Liberty Ave / N Argonne Rd | S | 25.8 | C |
| | E Dalton Ave / N Argonne Rd | U | 17.7 | C |
| | E Euclid Ave / N Argonne Rd | S | 39.4 | D |
| | E Frederick Ave / N Argonne Rd (N) | U | 11.3 | B |
| | E Frederick Ave / N Argonne Rd (S) | U | 15.6 | C |
| | E Grace Ave / N Argonne Rd | S | 23.3 | C |
| | E Buckeye Ave / N Argonne Rd | U | 56.8 | F |
| | E Trent Ave / N Argonne Rd | S | 53.3 | D |
| | E Empire Ave / E Fowler Rd | A | 7.8 | A |
| | E Liberty Ave / E Vista Rd | A | 8.5 | A |
| | E Euclid Ave / Vista Rd | U | 13.5 | B |

*S = Signal: average delay reported. A = All-Way Stop: average delay reported. U = Minor Street Stop: Worst movement reported.*


Maringo
Spokane River
Fowler
Empire
A
7.5
Court
South River Way
C
17.4
Bridgeport
F
83.4
A
8.9
Liberty
Liberty
B
16.8
Vista
Dalton
B
11.3
Euclid
F
132.1
Empire
B
11.8
Euclid
UPRR
B
11.7
Vista
B
10.1
Frederick
Laura
Sargent
Dale
Marguerite
Hutchinson
Argonne
Stout
B
17.5
Grace
Buckeye
F
78.4
Willow
Maple
D
45.5
York
Trent (SR-290)
BNSFRR
N
Not To Scale
Legend
LOS
Delay
Signalized
LOS
Delay
Stop-controlled
Montgomery
TOWN OF MILLWOOD
ARGONNE ROAD CORRIDOR STUDY
AM INTERSECTION OPERATION
W&H PACIFIC
Mirai
November, 2007
FIGURE 1-6

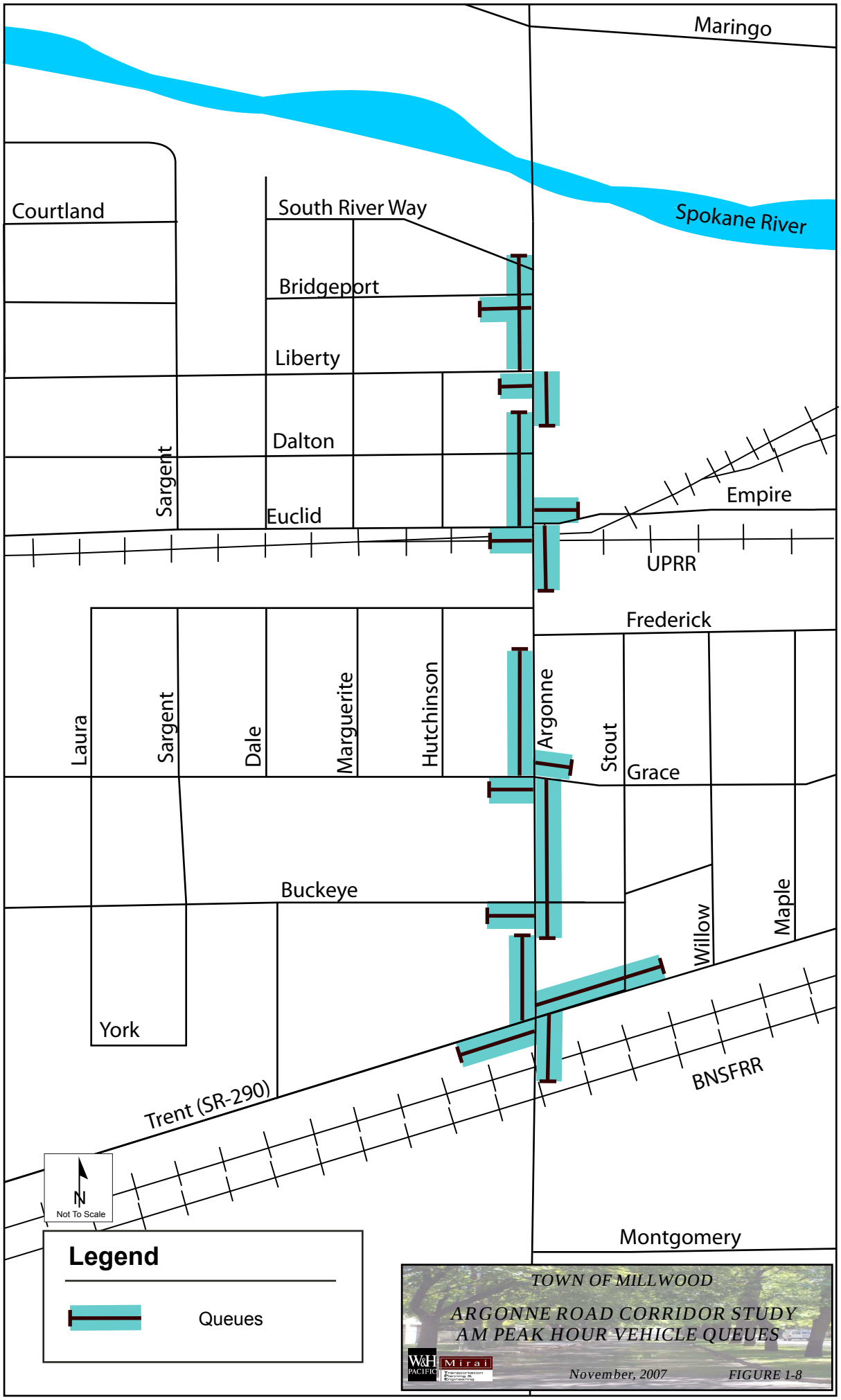

Maringo
Spokane River
Fowler
Empire
A
7.8
Court
South River Way
F
99.9
Bridgeport
F
373.7
A
8.5
Liberty
Liberty
C
25.8
Vista
Dalton
C
17.7
Euclid
D
39.4
Empire
B
13.5
Euclid
UPRR
B
11.3
Vista
C
15.6
Frederick
Laura
Sargent
Dale
Marguerite
Hutchinson
Argonne
Stout
C
23.3
Grace
Buckeye
F
56.8
Willow
Maple
D
53.3
York
Trent (SR-290)
BNSFRR
N
Not To Scale
Legend
LOS
Delay
Signalized
LOS
Delay
Stop-controlled
Montgomery
TOWN OF MILLWOOD
ARGONNE ROAD CORRIDOR STUDY
PM INTERSECTION OPERATION
W&H PACIFIC
Mirai
November, 2007
FIGURE 1-7

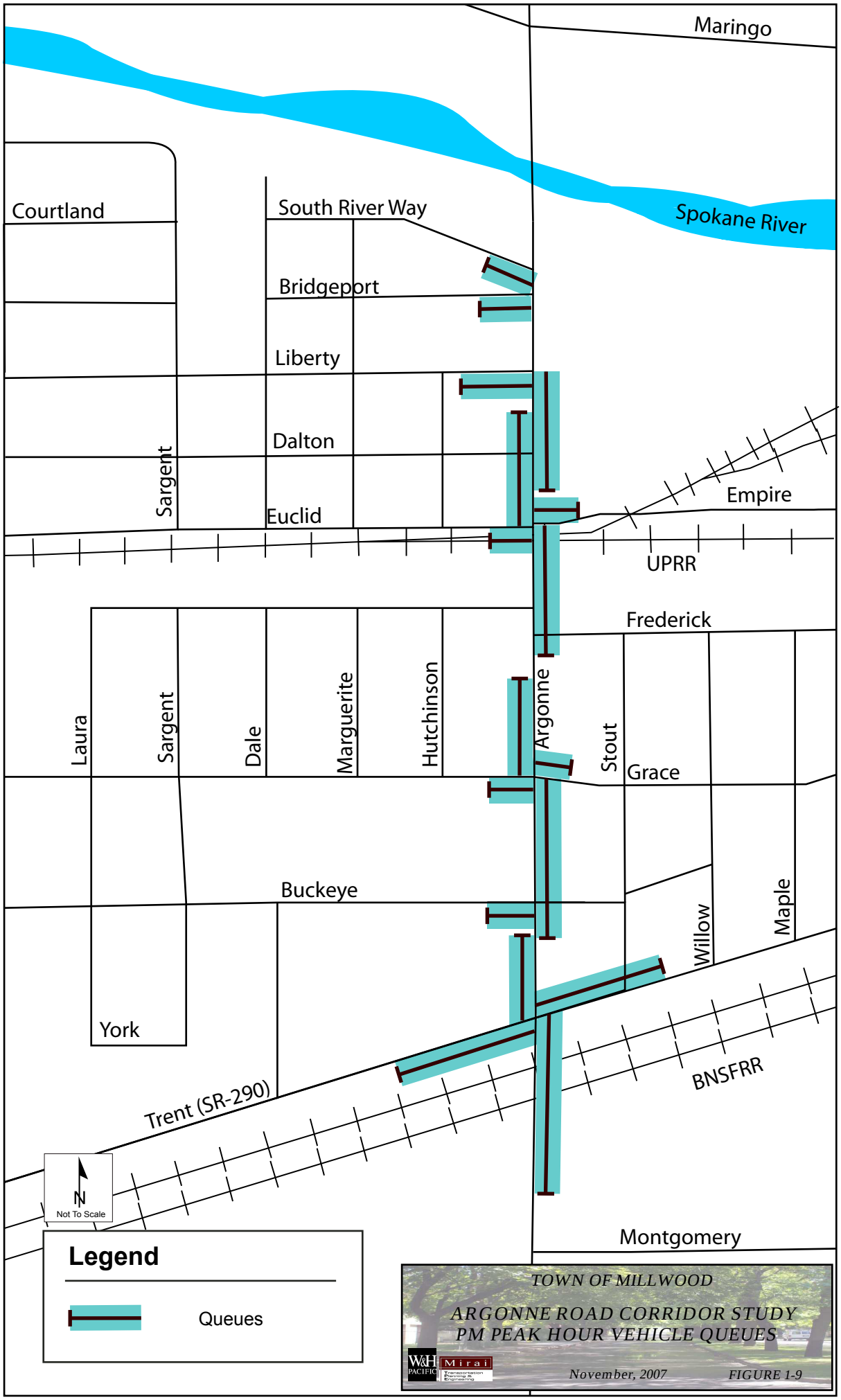
## Vehicle Queuing

The length of vehicle queues or backups that occur during peak periods can provide additional understanding about the operation of a corridor. Queues form naturally when a roadway is controlled by either a signal or a stop sign. The length of a queue is a factor of the volume of vehicles, signal timing, turn lane lengths and vehicle arrival patterns, to name a few. **Figure 1-8** and **Figure 1-9** show the AM peak hour and PM peak hour interaction of vehicle queue lengths along Argonne Road and approaching side streets. During the morning commute, southbound queues often extend back from E Liberty Avenue and E Euclid Avenue blocking access to minor streets and driveways along Argonne Road. During the PM peak hour, traffic back-ups extend from the intersections of Grace, Empire/Euclid and Liberty in the northbound direction, as well as at Empire/Euclid in the southbound direction. Most stop-controlled minor streets have short queues, because of the low volumes using these roadways.

## Traffic Signals

Traffic signals are located at the intersections of E Grace Avenue, Euclid/Empire Avenue, E Liberty Avenue and E Trent Avenue. All intersections, except E Trent, have two phase operation, push-button controlled pedestrian crossing signals. The City of Spokane Valley maintains the E Trent Avenue signal and Spokane County maintains the remaining signals under contract with Millwood. Signals are not interconnected, except for the Union-Pacific intertie to the Euclid/Empire signal. Emergency vehicles can override the system (opticom), but still may have difficulty with the high levels of traffic and the limited signal coordination in the corridor.


Maringo
Spokane River
Courtland
South River Way
Bridgeport
Liberty
Dalton
Euclid
Sargent
Empire
UPRR
Frederick
Laura
Sargent
Dale
Marguerite
Hutchinson
Argonne
Stout
Grace
Buckeye
Willow
Maple
York
BNSFRR
Trent (SR-290)
N
Not To Scale
Montgomery
Legend
Queues
TOWN OF MILLWOOD
ARGONNE ROAD CORRIDOR STUDY
AM PEAK HOUR VEHICLE QUEUES
W&H PACIFIC
Mirai
November, 2007
FIGURE 1-8


Maringo
Spokane River
Courtland
South River Way
Bridgeport
Liberty
Dalton
Sargent
Euclid
Empire
UPRR
Frederick
Laura
Sargent
Dale
Marguerite
Hutchinson
Argonne
Stout
Grace
Buckeye
Willow
Maple
York
BNSFRR
Trent (SR-290)
N
Not To Scale
Montgomery
Legend
Queues
TOWN OF MILLWOOD
ARGONNE ROAD CORRIDOR STUDY
PM PEAK HOUR VEHICLE QUEUES
W&H PACIFIC
Mirai
November, 2007
FIGURE 1-9

## Collision History

The consultant reviewed collision data during 2004 to 2006 representing three years of data for the Town of Millwood. The data, provided by the Washington State Department of Transportation, includes details about the location, time of day, collision type and contributing factors. Along the Argonne Road corridor, there were 60 collisions during the 2004-06 period, representing two-thirds of all collisions within Millwood. **Figure 1-10** identifies the number and types of collision by location over the 3-year period throughout Millwood. The highest number of collisions occurred at E Trent Avenue, E Liberty Avenue and E Grace Avenue, where there are high traffic and turning movement volumes.

### *Collision Types*

Most collisions along the Argonne Road corridor are rear-end collisions, resulting from a vehicle colliding with a vehicle it is following. Rear end collisions make up 42 percent of Argonne Road collisions reflect highly congested conditions and vehicles stopping or waiting to turn left at driveways and intersections. Angle collisions, related to vehicle turning or crossing movements are the second highest at 18 percent. **Table 1-3** summarizes the types of collisions observed throughout the Argonne Road corridor.

### Table 1-3. Collision Types Argonne Road

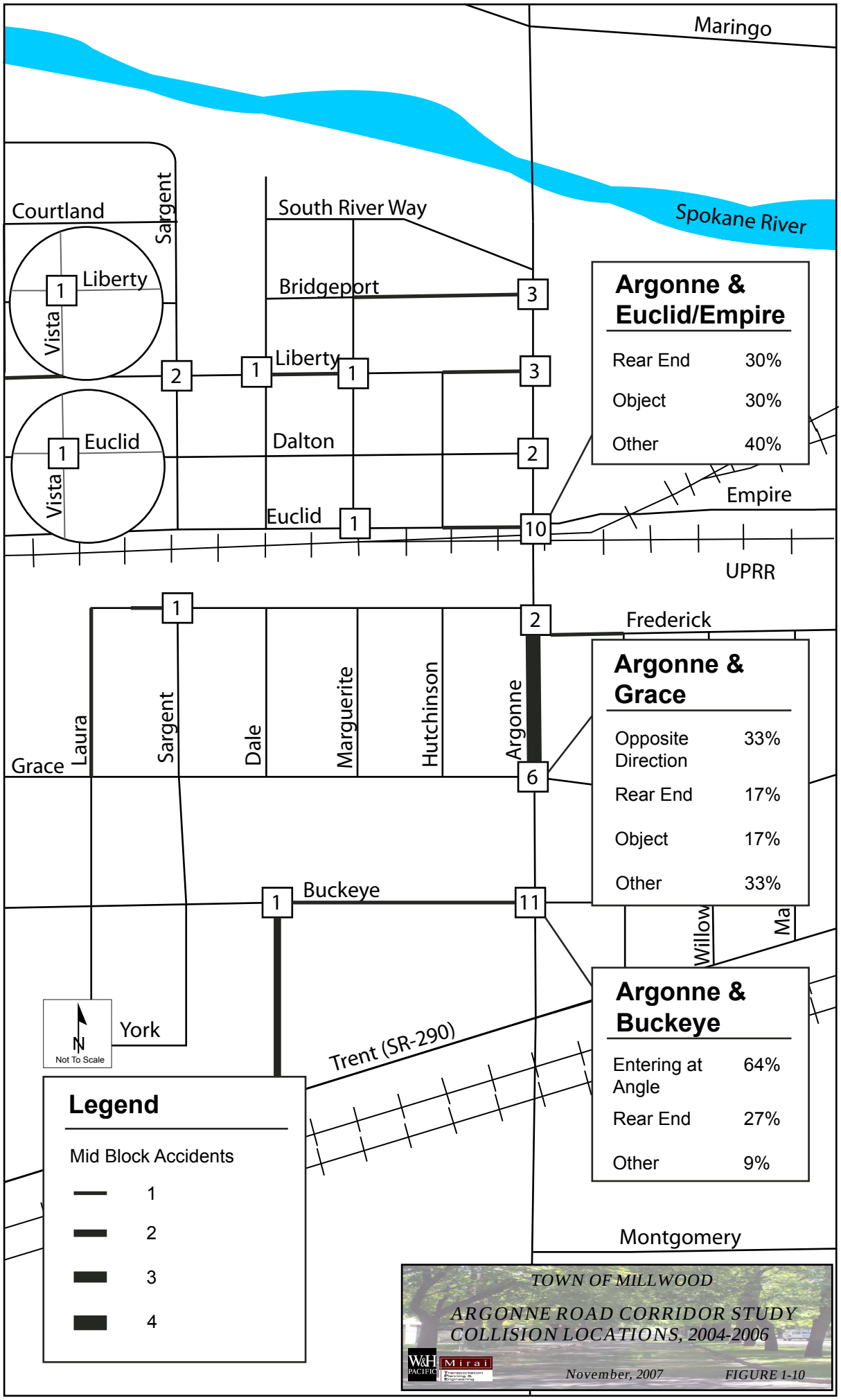
| Type | Collisions (2004-06) | Percent (%) |
|---|---|---|
| Rear-End | 25 | 42% |
| Entering at Angle | 11 | 18% |
| Object Collision | 8 | 13% |
| Car Leaving/Entering Driveway Access | 4 | 7% |
| Opposite Direction - one left turn, one straight | 4 | 7% |
| Sideswipe | 3 | 5% |
| Head on | 1 | 1% |
| Other | 4 | 7% |
| Total | 60 | 100% |

### *Contributing Reasons*

Other reasons can contribute to a collision event. **Table 1-4** identifies the contributing factors that contributed in the resulting collision.

### Table 1-4. Contributing Reasons to Collisions

| Contributing Reasons | Collisions (2004-06) | Percent (%) |
|---|---|---|
| Not Granting Right of Way | 16 | 27% |
| Exceeding Reasonably Safe Speeds | 7 | 12% |
| Following too Closely | 12 | 20% |
| Inattention | 2 | 3% |
| Under the Influence of Alcohol | 4 | 7% |
| Improper Backing | 1 | 2% |
| Other | 10 | 17% |
| None Listed | 8 | 13% |


Maringo
Spokane River
Courtland
Sargent
South River Way
Liberty
Vista
Bridgeport
Liberty
Euclid
Vista
Dalton
Euclid
Empire
UPRR
Frederick
Laura
Sargent
Dale
Marguerite
Hutchinson
Argonne
Grace
Buckeye
Willow
Ma
York
Trent (SR-290)
Montgomery
N
Not To Scale
Argonne & Euclid/Empire
Rear End 30%
Object 30%
Other 40%
Argonne & Grace
Opposite Direction 33%
Rear End 17%
Object 17%
Other 33%
Argonne & Buckeye
Entering at Angle 64%
Rear End 27%
Other 9%
Legend
Mid Block Accidents
1
2
3
4
TOWN OF MILLWOOD
ARGONNE ROAD CORRIDOR STUDY
COLLISION LOCATIONS, 2004-2006
November, 2007
FIGURE 1-10

## Non-Motorized Transportation Facilities

The identification of bicycle and pedestrian facilities is important to encouraging non-motorized travel and improving walkability within the Town of Millwood.

### *Pedestrian facilities*

Sidewalks, walkways and trails are primary pedestrian facilities. Within the Argonne Road corridor, most sidewalks are 5-6 feet wide, although there is a significant stretch of sidewalk adjacent to Inland Empire Paper that is only 4 feet wide. Along the eastern length of the corridor, utility poles are located within the 4-5 foot sidewalk, further impeding pedestrian movement. There are locations where sidewalks are discontinuous (missing) and/or are in poor condition. A primitive path connects E Frederick Avenue and E Grace Avenue on the west side of Argonne Road, and is only appropriate for able-bodied pedestrians.

There are crosswalks at all intersections with traffic signals along the corridor (Liberty, Empire/Euclid, Grace, and Trent). There are also key crosswalks without pedestrian signals at E Buckeye Avenue – a marked school crossing. **Figure 1-11** shows the location of pedestrian attractions and missing sidewalks along the corridor.

Curb ramps at crosswalk locations were inventoried. Nearly all crosswalk locations within the corridor either do not have ADA curb ramps at all, or have substandard ramps. A single ramp at the NW corner of Argonne Road and S. Riverway is a curb ramp (see adjacent photo) that is acceptable in accordance with today's ADA standards.

### *Bicycle facilities*

Within Spokane County, the Spokane Regional Transportation Council (SRTC) designates all arterial roadways as a Class IV "Shared roadway" whether or not the roadway has special facilities to assist bicyclist merge with traffic. Argonne Road is designated at a Class IV facility. The Spokane River bridge at the northern Town boundary has wide edge lanes to accommodate bicycles. Within the Town along the Argonne corridor, there is limited or no additional shoulder width to accommodate bicycles, nor are there any designated bike lanes. Bicycles are forced to travel within the vehicle lanes.

The Centennial Trail, a highly popular regional, multi-use trail runs parallel to the northern edge of the Spokane River in this vicinity. It crosses Argonne Road at the Argonne/Upriver Drive intersection, approximately 0.5 mile north of the Town of Millwood limits.

## Transit Operations

Spokane Transit Authority provides transit service to the Town of Millwood. Route 95 serves Argonne Road, and Route 32 operates on Trent Avenue.

Route 95 connects the Town of Millwood to the Pence-Cole Valley Transit Center, where riders can transfer to other local and regional routes. Route 95 travels on a loop through the town, operating westbound on E Trent Road, northbound on N Park Road, eastbound on E Liberty Avenue and then southbound on Argonne Road. Service is provided between 5 am and 10 pm Monday through Saturdays and 7 am to 10 pm on Sundays. Service is provided every half-hour during weekdays and hourly after 7 pm. Hourly service is provided on Saturdays and Sundays.

There are five bus stops along the edge of the southbound lanes on Argonne Road. They are located at:

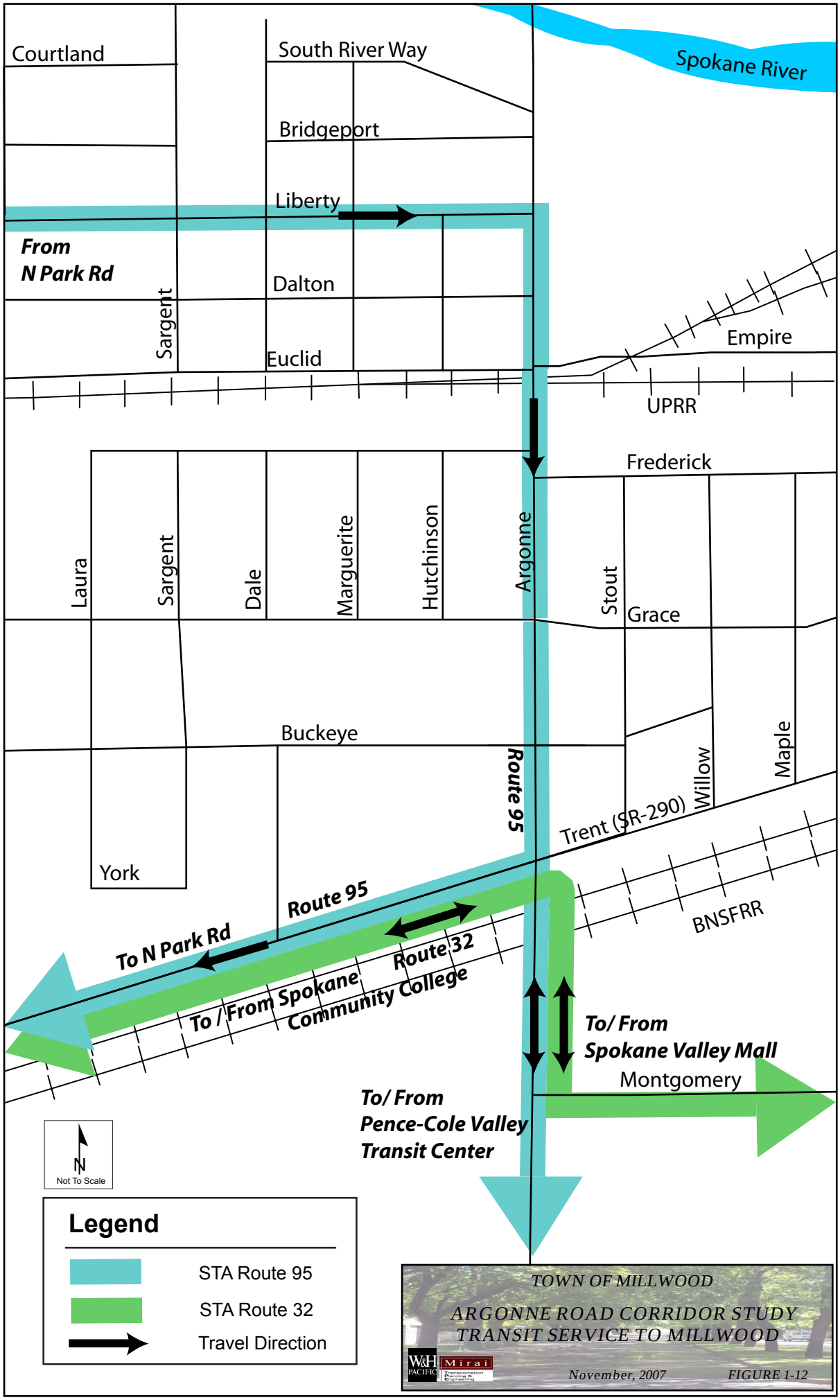
- E Buckeye Avenue (shown right)
- E Grace Avenue
- S. of E Frederick Avenue
- E Empire Avenue
- E Liberty Avenue

The usability of the bus stop south of E Frederick Avenue (shown in adjacent photo, right) is limited, due to the primitive and rugged nature of the pathway at this location. The stop is approximately one to two feet higher than the adjacent roadway rendering it useful only to able-bodied riders.

The bus stop at E Liberty is located on the southwest corner of Liberty and Argonne Road (see adjacent photo, left). Due to the wide and informal access to the adjacent business, riders have no designated area to wait for the bus.

Route 32, connecting between the Spokane Valley Mall and Spokane Community College, operates on E Trent Avenue. Service is provided between 6 am and 11 pm, Monday thru Friday and 6 am to 8 pm on Saturdays and Sundays. **Figure 1-12** shows the Route 95 and Route 32 transit routes within Millwood.

Maringo
Spokane River
Courtland
South River Way
Bridgeport
Liberty
Dalton
Sargent
Euclid
Empire
UPRR
TH
Frederick
Laura
Sargent
Dale
Marguerite
Hutchinson
Argonne
Stout
Grace
Willow
Maple
Buckeye
N
Not To Scale
Trent (SR-290)
BNSFRR
Montgomery
Legend
Crosswalk Location at signal
Discontinuous Sidewalk
Unsignalzed Crosswalk
Park
Town Hall
Church
School
TOWN OF MILLWOOD
ARGONNE ROAD CORRIDOR STUDY
PEDESTRIAN CONTEXT
November, 2007
FIGURE 1-11


Courtland
South River Way
Spokane River
Bridgeport
Liberty
From
N Park Rd
Dalton
Sargent
Euclid
Empire
UPRR
Frederick
Laura
Sargent
Dale
Marguerite
Hutchinson
Argonne
Stout
Grace
Buckeye
Route 95
Willow
Maple
Trent (SR-290)
York
Route 95
BNSFRR
To N Park Rd
Route 32
To / From Spokane
Community College
To/ From
Spokane Valley Mall
Montgomery
To/ From
Pence-Cole Valley
Transit Center
N
Not To Scale
Legend
STA Route 95
STA Route 32
Travel Direction
TOWN OF MILLWOOD
ARGONNE ROAD CORRIDOR STUDY
TRANSIT SERVICE TO MILLWOOD
November, 2007
FIGURE 1-12

## Freight Operations

Freight movement is an important function for any region. The movement of truck freight and truck movements related to construction activities are indications of the growth of the region. **Figure 1-13** shows the percentage of truck traffic to total volumes between 6 AM and 6 PM based on automated vehicle classification counts. According to this data, trucks make up approximately 11-18 percent of all traffic along the corridor. Traffic counts collected manually in the field indicated a lower percentage of trucks with around 5 to 6 percent of total volumes during peak commute hours. As a primary crossing of the Spokane River and a connection to I-90, Argonne Road serves as a primary north-south truck route in the area. Field observations have indicated that companies such as Inland Asphalt, Whitley Fuel, and Central Pre-Mix use Argonne Road on a regular basis.

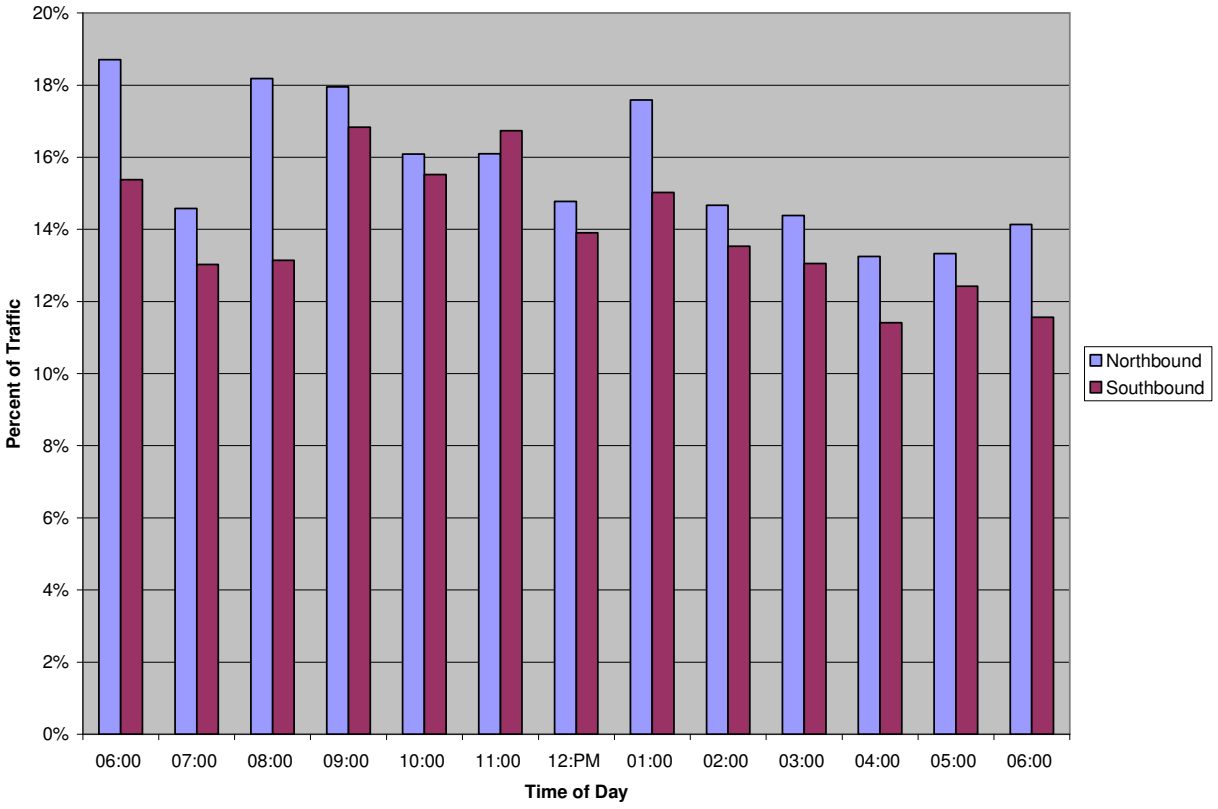
Inland Empire Paper (IEP) uses Argonne Road regularly for movement of freight into and out of the mill (see adjacent photo). Large IEP trucks access Argonne Road from Empire Avenue, and depending on queues on Empire, have difficulty crossing Argonne Road to head southbound while the signal is still green.

## Rail Operations

A single-track railroad line crosses the south leg of Argonne Road at the intersection of E Euclid/Empire Avenue (see adjacent photo). This Union Pacific Railroad mainline track also has a spur connection to the Inland Empire Paper Company, east of Argonne Road. Union Pacific sends approximately 7-10 trains per 24 hour period across Argonne Road's at-grade crossing depending on the demand and loads. When train crossings do occur, there is significant disruption of the Argonne Road depending on the time of day, speed and length of train, and traffic volumes.

Train movements through this crossing occur based on schedules defined by the railroad and its customers and do not account for the impact to intersecting roadways. There are railroad signal lights and protective crossing gates and a signal intertie that controls the E Euclid/Empire Avenue traffic signal. Other signals along the corridor are not coordinated and may not operate well during and after a train pre-emption, resulting in additional congestion and intersection blocking.

Figure 1-13. Truck Percentage of Total Volumes by Hour (6 AM to 6 PM)




## FUTURE GROWTH

The Spokane Regional Transportation Council (SRTC) has provided land use forecasts for 2015. The SRTC is currently updating their model, which will be used to forecast future travel volume for the Argonne corridor.

### Household Growth Forecasts

Review of the land use assumptions indicates approximately 11% growth in the number of households within the Town of Millwood between 2006 and 2015. Much of this growth is expected in the northwest and southeast portions of the community. Much higher levels of growth are expected north of the Spokane River associated with continued housing development in Spokane County. An approximate 21% increase in housing units is expected north of the bridge. In areas to the south of Millwood, many of which are nearly built out, low growth in households is expected.

### Employment Forecasts

The employment forecasts use a base assumption of 11% annual growth rate over the nine year period. Each jurisdiction will assign a portion of the growth to specific locations where employment growth will grow occur higher rates. This process will concentrate future employment growth in areas where there is existing growth, and allows the jurisdictions some latitude in identifying higher growth areas for employment.

## Future Traffic Volumes

Until the completion of the SRTC model update, specific forecasts of trips are not possible for the Argonne Road corridor. Based on the land use data, future household growth along the corridor is expected to increase particularly to north of the river. With approximately 690 new households forecasted for zones to the north in 2015, we would expect 400 to 600 additional trips to be added to Argonne Road during the morning and evening commute hours. This additional traffic would be expected to worsen congestion on Argonne Road through Millwood and may result in longer periods of "maximum congestion", extending peak congested conditions to as much as 1.5 to 2.5 hours.

## Relevant Regional Transportation Improvement Projects

There are a few notable transportation improvement projects that may influence traffic along the Argonne Road Corridor in the future. **Figure 1-14** shows the North Spokane Corridor project, in addition to the Bigelow Gulch/Forker Road Corridor project.

### *North Spokane Corridor*

One such project is the WSDOT North Spokane Corridor, portions of which are currently under design and construction. This high-speed, limited access corridor will provide a new north-south route between I-90, near the current Thor/Freya interchange, and Highways 2/395 in Northern Spokane County. This north-south corridor will parallel the Argonne Road corridor and will be located east of the current Freya/Market street corridor and west of the Argonne Road corridor. Not all of the project is currently funded. The first segment is expected to open in late 2008, which will connect Francis Avenue with Highways 2/395 to the north.

### *Bigelow Gulch/Forker Road Corridor*

Another regional improvement project is the Spokane County Bigelow Gulch/Forker Road Corridor. This project will improve the existing east-west route from the City of Spokane at Francis Avenue to the City of Spokane Valley at the intersection of Sullivan Road by adding lanes, widening, and straightening the roadway to improve safety. The corridor is expected to be constructed in six projects, with project completion estimated by the end of 2010.

### *Bridging the Valley*

A coalition of agencies led by SRTC, Union Pacific Railroad and the Burlington Northern Santa Fe Railroad are actively pursuing funding for an ambitious program of grade-separation projects to streamline railroad operations throughout the Spokane Valley. Grade-separation would allow the railroads to operate more efficiently and with improved safety by constructing new bridges for railroad tracks to span busy roadways. A key project for the Town of Millwood and the Argonne Road corridor would be the construction of a second BNSF mainline track that would allow rerouting of Union Pacific trains from the current at-grade crossing south of E Euclid/Empire Avenue. This change would significantly reduce the number and length of trains crossing Argonne Road and the impact to the roadways operation. Local rail deliveries would continue to operate along the UPRR track, but at lower frequencies and with shorter trains.

Once funding is secure, implementation of the Bridging the Valley program would extend over an eight-year period of area-wide construction. This program of projects would create an important change for all modes of travel throughout Spokane Valley, with clear safety and operational benefits for Millwood.

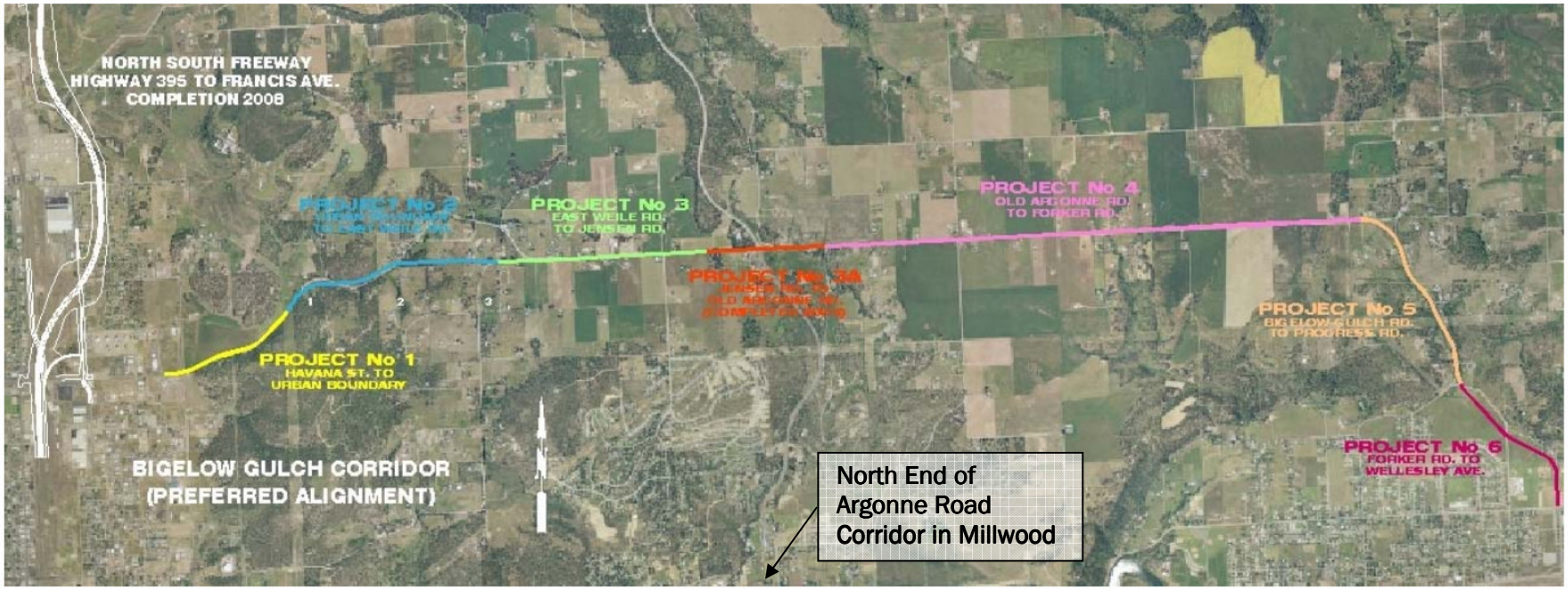



Figure 1-14. Regional Transportation Improvement Projects