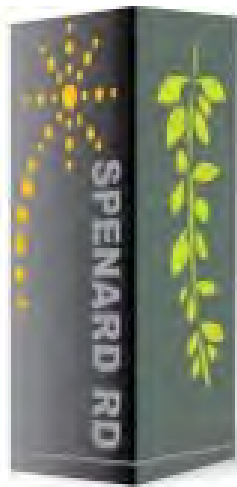


SPENARD ROAD RECONSTRUCTION
PHASE II
HILLCREST DRIVE TO BENSON BOULEVARD
PM&E PROJECT NO. 03-022B



SPENARD ROAD
Reconstruction

LEVEL-OF-SERVICE
ANALYSIS

DRAFT
JANUARY 2016

Prepared by:



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Prepared for:



Municipality of Anchorage
4700 Elmore Road
Anchorage, AK 99507

**Spenard Road Reconstruction Phase II
Hillcrest Drive to Benson Boulevard
MOA Project No. 03-21B**

Prepared For:

Municipality of Anchorage
Project Management and Engineering Department
4700 Elmore Road, Anchorage, AK 99507

Prepared By:

Lounsbury & Associates, Inc.
Surveyors Engineers Planners
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NOTICE TO USERS

This Report reflects the thinking and design decisions, at the time of publication. Changes frequently occur during the evolution of the design process. Persons who may rely on the information contained in this document should consult with the Municipality of Anchorage, Project Management & Engineering Department for the most current design. Please contact Mr. John Smith, Project Manager at 343-8422 for this information.

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1.0 TRAFFIC ANALYSIS

As part of the Spenard Road project, a traffic analysis consisting of traffic volume projections and level-of-service (LOS) determinations were performed. LOS analyses were developed according to the Highway Capacity Manual, Trafficware's Synchro computer software, and signal timing plans provided by Municipality of Anchorage (MOA).

1.1 ANALYSIS CONSIDERATIONS

The traffic analysis was completed on the intersection configuration recommendations proposed for the project. Construction is expected to occur in 2017. The MOA Design Criteria Manual (DCM) requires that reconstruction projects be designed for a design life of 20 years. Therefore, the design year of the Spenard Road Reconstruction project is 2037.

1.2 LEVEL-OF-SERVICE CRITERIA

The MOA (DCM) establishes two LOS requirements:

- 1) Intersection and critical movement LOS shall be LOS D or better in the design year; and
- 2) Intersection and critical movement LOS shall be LOS C or better in the mid-year (10 years from the construction date).

1.3 INTERSECTIONS EVALUATED

Three signalized intersections along the project corridor were evaluated to determine their respective LOS performance. These intersections included:

- Benson Boulevard and Spenard Road;
- Northern Lights Boulevard and Spenard Road; and
- Fireweed Lane and Spenard Road.

The Benson Boulevard and Northern Lights Boulevard intersections remain in their current configurations. Improvement alternatives at these intersections are restricted by the short separation distance (approximately 450-feet) and right-of-way constraints. At the Fireweed Lane intersection, the project will replace the northbound through/right-turn lane with an exclusive right-turn lane and southbound through/left-turn lane with an exclusive left-turn lane. See Figure 1 for the recommended Spenard Road/Fireweed Lane intersection lane configuration.

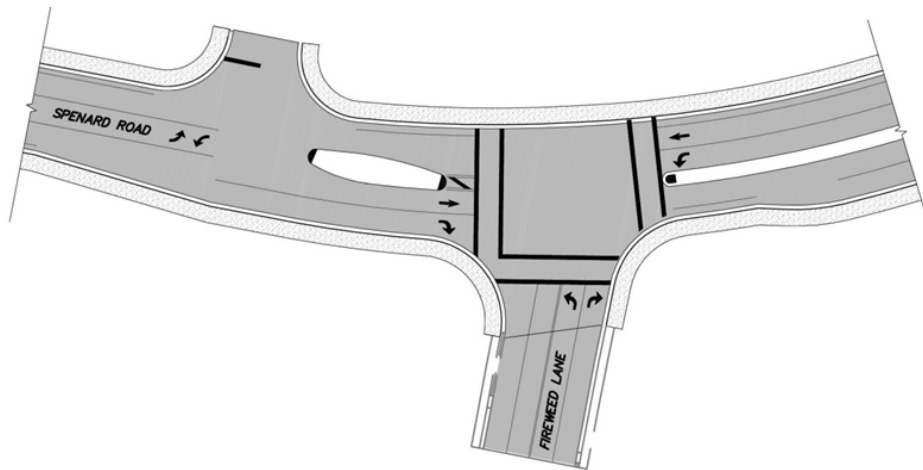


Figure 1: Spenard Road Recommended Lane Configuration

1.4 FUTURE TRAFFIC VOLUMES

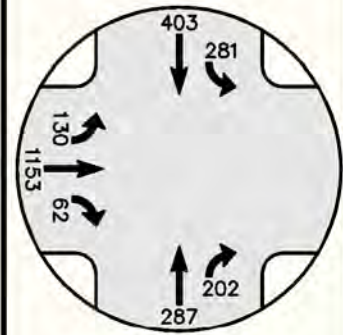
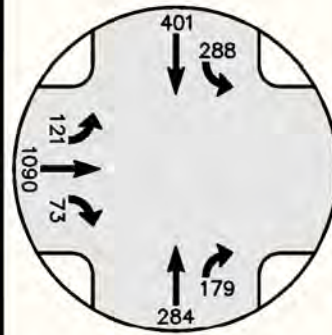
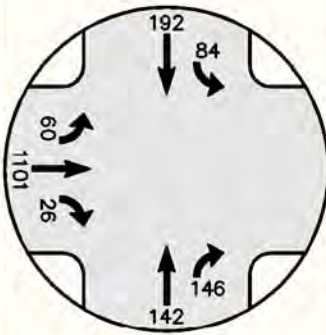
Future traffic volume projections and growth rates are based on historical growth patterns for Spenard Road. Growth rate determinations are included in Appendix F, Traffic Projections. The recommended growth rates were applied to the respective intersection approaches to analyze future turning movements.

1.5 TURNING MOVEMENTS

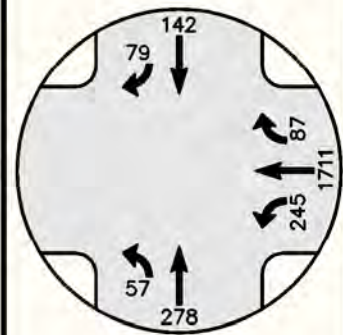
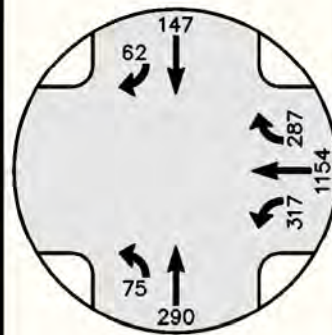
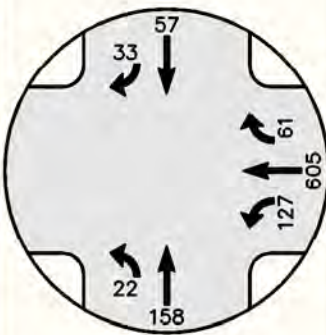
MOA provided existing 2014 intersection approach volumes for the three signalized intersections. Based on previous peak hour counts and the recommended growth rates, construction year (2017), mid-year (2027) and design year (2037) turning movement projections were calculated. Figures 2 through 5 present the projected turning movements.



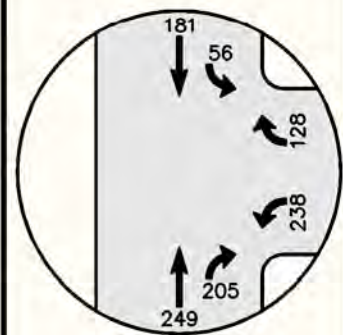
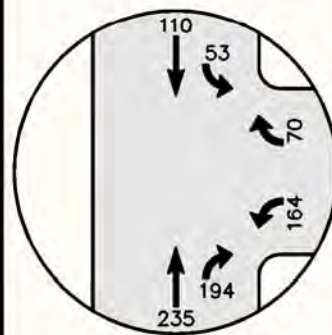
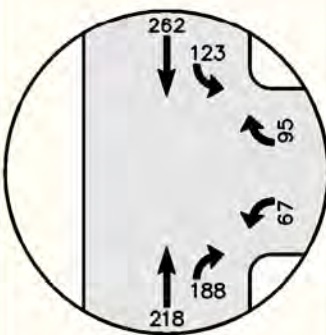
① BENSON BOULEVARD/SPENARD DRIVE



② NORTHERN LIGHTS BOULEVARD/SPENARD DRIVE



③ FIREWEED LANE/SPENARD DRIVE



AM PEAK HOUR
(VEHICLE/HOUR)

NOON PEAK HOUR
(VEHICLE/HOUR)

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HILLCREST DR. TO BENSON BLVD.
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2014 TURNING MOVEMENTS

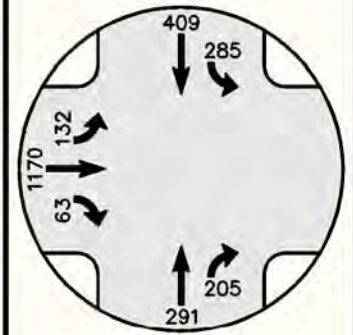
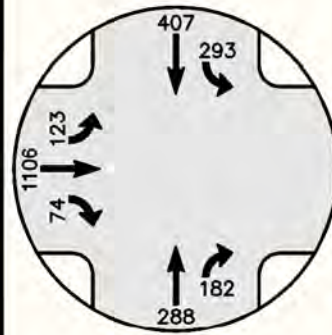
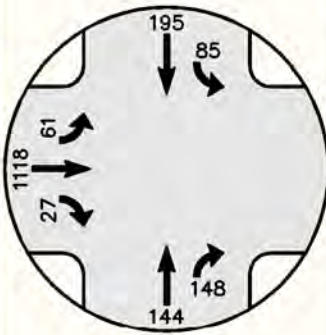
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FIGURE 2

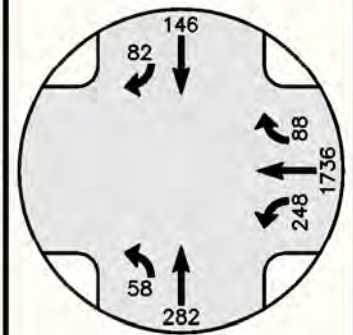
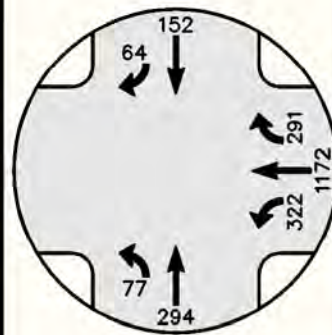
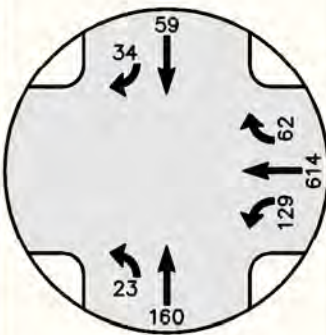
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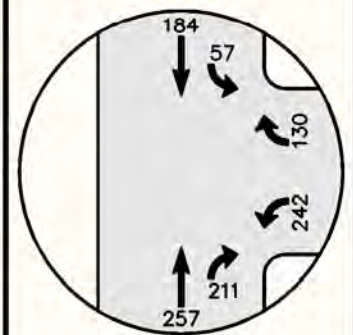
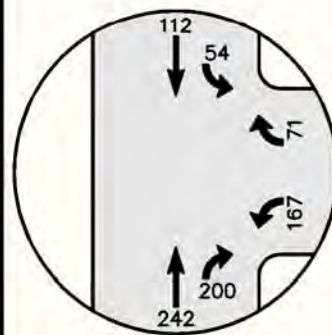
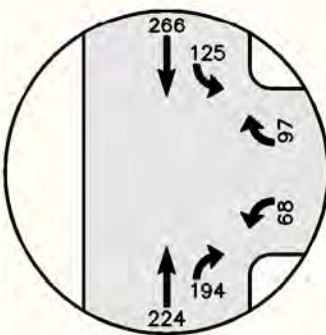
① BENSON BOULEVARD/SPENARD DRIVE



② NORTHERN LIGHTS BOULEVARD/SPENARD DRIVE



③ FIREWEED LANE/SPENARD DRIVE



AM PEAK HOUR
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2017 TURNING MOVEMENTS

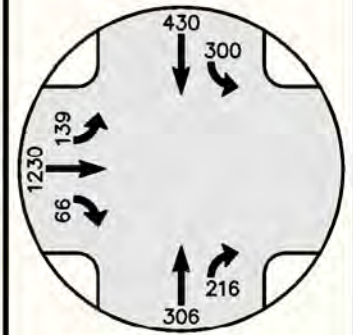
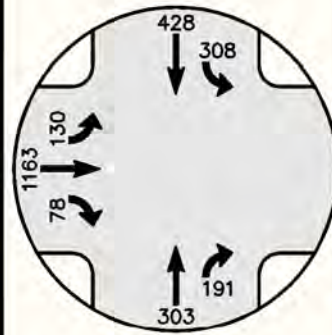
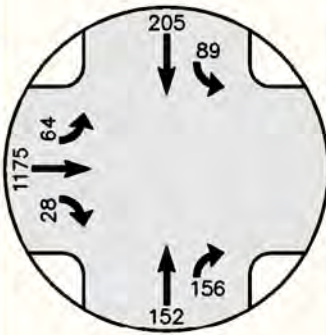
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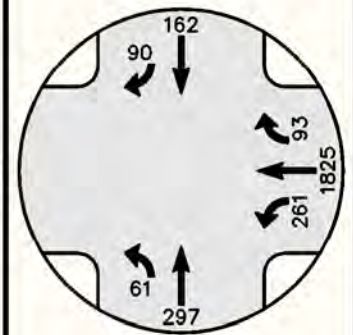
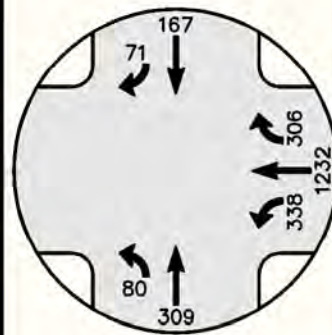
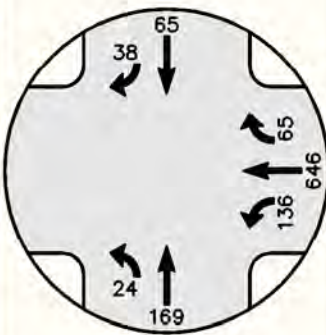
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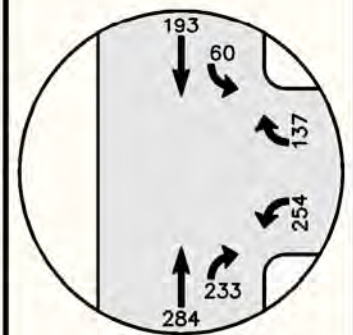
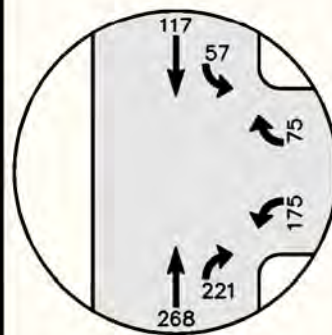
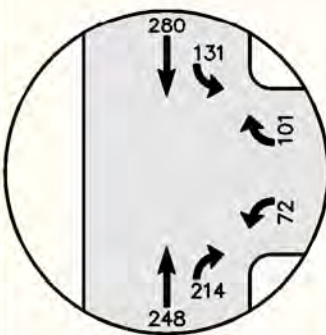
① BENSON BOULEVARD/SPENARD DRIVE



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SPENARD ROAD RECONSTRUCTION PHASE II
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MOA Project No. 03-022B

2027 TURNING MOVEMENTS

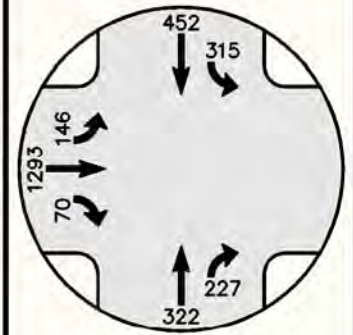
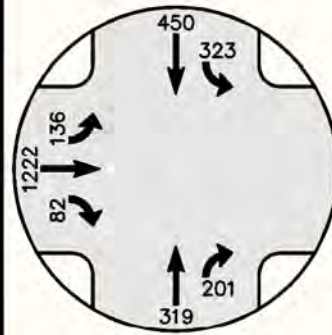
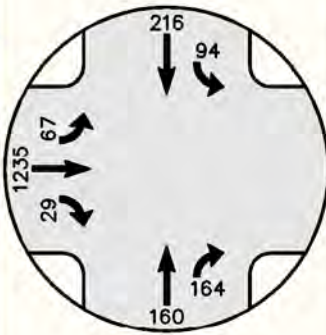
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FIGURE 4

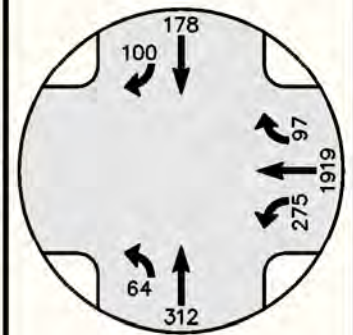
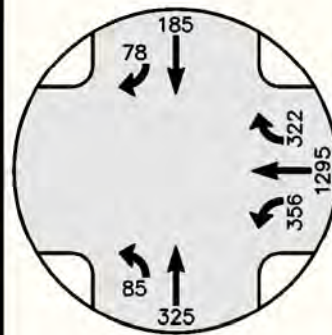
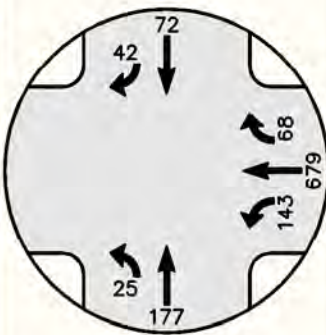
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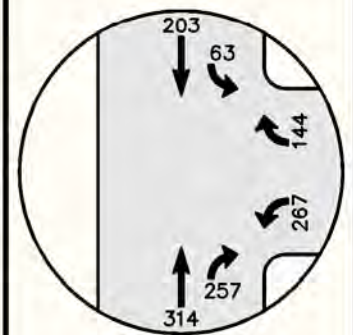
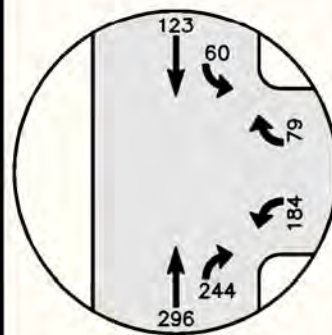
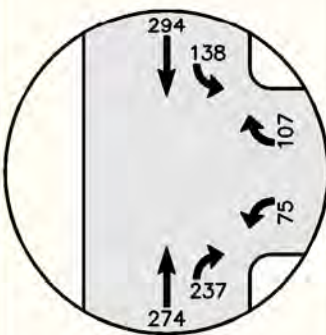
① BENSON BOULEVARD/SPENARD DRIVE



② NORTHERN LIGHTS BOULEVARD/SPENARD DRIVE



③ FIREWEED LANE/SPENARD DRIVE



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SPENARD ROAD RECONSTRUCTION PHASE II
HILLCREST DR. TO BENSON BLVD.
MOA Project No. 03-022B

2037 TURNING MOVEMENTS

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FIGURE 5

DATE: 1/8/2016
SCALE: 1"=700'

2.0 LEVEL-OF-SERVICE ANALYSIS

A LOS determination performed on the three signalized intersections within the project corridor indicates the 2027 and 2037 overall intersection LOS performance levels are acceptable. However, at each intersection, specific turning movements are expected to operate poorly. At the Northern Lights and Benson intersections, the predominant signal green time is allocated to the major arterials, and the Spenard Road approaches tend to perform at lower levels-of-service. The Spenard Road and Benson Boulevard intersection southbound approach currently operates at a LOS E with 58.7-second delay. Queuing for this movement commonly extends to the north side of the Northern Lights intersection. The LOS is expected to remain at LOS E for the entirety of the project design life.

Likewise, the northbound right-turn at the Spenard Road and Fireweed Lane intersection will likely operate at LOS E for the entirety of the project design life.

Detailed LOS reports are in Appendix H. The following tables summarize the signalized intersection LOS results for 2017, 2027, and 2037.

2.1 CONSTRUCTION YEAR LEVEL-OF-SERVICE – EXISTING CONDITIONS

Table 1: 2017 Existing Conditions Peak Hour LOS

Intersection	Intersection LOS	Approach LOS			
		NB	SB	EB	WB
2017 AM					
Benson/Spenard	B	C	E	A	---
Northern Lights/Spenard	B	C	C	---	A
Fireweed/Spenard	A	A	A	---	B
2017 Mid					
Benson/Spenard	C	B	D	B	---
Northern Lights/Spenard	B	D	C	---	A
Fireweed/Spenard	A	A	A	---	B
2017 PM					
Benson/Spenard	C	B	D	B	---
Northern Lights/Spenard	B	D	C	---	A
Fireweed/Spenard	A	A	A	---	B

2.2 CONSTRUCTION YEAR LEVEL-OF-SERVICE – PROPOSED 3-LANE

Table 2: 2017 Proposed 3 Lane Peak Hour LOS

Intersection	Intersection LOS	Approach LOS			
		NB	SB	EB	WB
2017 AM					
Benson/Spenard	B	C	E	A	---
Northern Lights/Spenard	B	C	C	---	A
Fireweed/Spenard	C	D	A	---	B
2017 Mid					
Benson/Spenard	C	B	D	B	---
Northern Lights/Spenard	B	D	C	---	A
Fireweed/Spenard	C	D	A	---	B
2017 PM					
Benson/Spenard	C	B	D	B	---
Northern Lights/Spenard	B	D	C	---	A
Fireweed/Spenard	C	D	A	---	B

2.3 MID-YEAR LEVEL-OF-SERVICE – PROPOSED 3-LANE

Table 3: 2027 Proposed 3 Lane Peak Hour LOS

Intersection	Intersection LOS	Approach LOS			
		NB	SB	EB	WB
2027 AM					
Benson/Spenard	B	C	E	A	---
Northern Lights/Spenard	B	C	C	---	A
Fireweed/Spenard	C	D	A	---	B
2027 Mid					
Benson/Spenard	C	B	D	B	---
Northern Lights/Spenard	B	D	C	---	A
Fireweed/Spenard	C	D	A	---	B
2027 PM					
Benson/Spenard	C	B	D	B	---
Northern Lights/Spenard	B	D	C	---	A
Fireweed/Spenard	C	D	A	---	B

2.4 DESIGN YEAR LEVEL-OF-SERVICE – PROPOSED 3-LANE

Table 4: 2037 Proposed 3 Lane Peak Hour LOS

Intersection	Intersection LOS	Approach LOS			
		NB	SB	EB	WB
2037 AM					
Benson/Spenard	B	C	E	A	---
Northern Lights/Spenard	B	C	C	---	A
Fireweed/Spenard	C	D	A	---	B
2037 Mid					
Benson/Spenard	C	B	E	C	---
Northern Lights/Spenard	B	D	C	---	A
Fireweed/Spenard	C	D	A	---	B
2037 PM					
Benson/Spenard	C	C	E	C	---
Northern Lights/Spenard	B	D	C	---	A
Fireweed/Spenard	C	D	A	---	B