APPENDIX D: AT INTERSECTION TREATMENT WARRANTS

Alberta Transportation intersection Improvement Warrant Analysis

Project Number: 2714.T01
Project Name: Gilead Foundation TIA
Intersection: Township Road 110 & Site Access
Roadway: Township Road 110
Direction: EB
Time Period: AM Peak
Scenario: Post Development
Design Speed: 90 km/h

1. **Warrant for Right-Turn Lane.** To warrant an exclusive right turn lane at a two-lane highway intersection in Alberta, the following three conditions must all be met:

a. Main Road (Twp Rd 110)	AADT ≥ 1800 vpd	1650	vpd	χ
b. Intersecting road (Site Access)	AADT ≥ 900 vpd	1670	vpd	√
c. Right-turn daily traffic volume	AADT ≥ 360 vpd	60	vpd	χ

∴ **A right-turn lane is not warranted**

2. **Warrant for Left-Turn Lane.** When making a left turn into the driveway, the turning vehicle may be delayed by a vehicle or vehicles in the opposing stream. Through vehicles in the advancing stream following the left-turning vehicle may be delayed by, or exposed to collision with turning vehicle. The interference caused by standing left turning vehicles in the through advancing traffic can reduce capacity and create a safety hazard. The amount of interference is dependent on opposing volumes, advancing volumes and the number of left turning vehicles.

a. Number of left-turning vehicles per hour		Vλ = 0	vph
b. Advancing volume		Va = + + = 0	vph
c. Proportion of left turns in Va	L = Vλ ÷ Va =	0 ÷ 0 = 0	%
d. Opposing volume		Vo = + + = 0	vph

∴ **A left-turn lane is not warranted**

Alberta Transportation Intersection Improvement Warrant Analysis

Project Number: 2714.T01
Project Name: Gilead Foundation TIA
Intersection: Township Road 110 & Site Access
Roadway: Township Road 110
Direction: WB
Time Period: AM Peak
Scenario: Post Development
Design Speed: 90 km/h

1. **Warrant for Right-Turn Lane.** To warrant an exclusive right turn lane at a two-lane highway intersection in Alberta, the following three conditions must all be met:

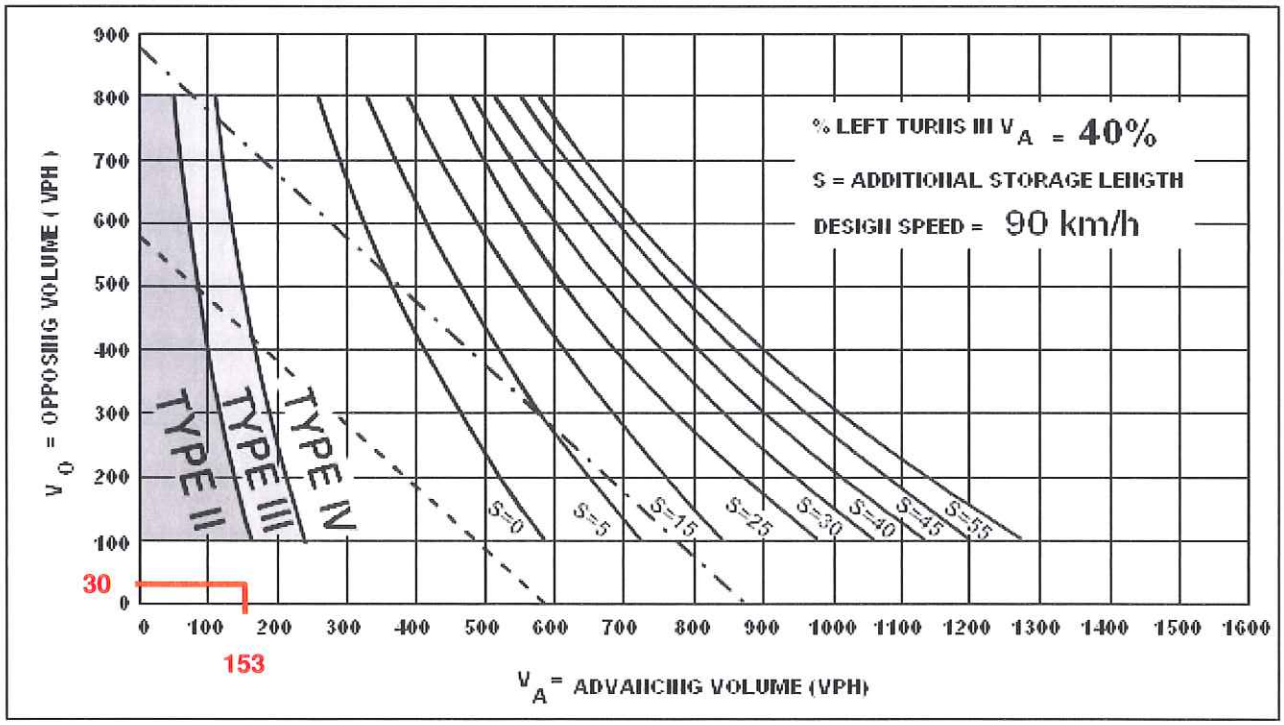
a. Main Road ()	AADT ≥ 1800 vpd	0	vpd	χ
b. Intersecting road ()	AADT ≥ 900 vpd	0	vpd	χ
c. Right-turn daily traffic volume	AADT ≥ 360 vpd	0	vpd	χ

∴ **A right-turn lane is not warranted**

2. **Warrant for Left-Turn Lane.** When making a left turn into the driveway, the turning vehicle may be delayed by a vehicle or vehicles in the opposing stream. Through vehicles in the advancing stream following the left-turning vehicle may be delayed by, or exposed to collision with turning vehicle. The interference caused by standing left turning vehicles in the through advancing traffic can reduce capacity and create a safety hazard. The amount of interference is dependent on opposing volumes, advancing volumes and the number of left turning vehicles.

a. Number of left-turning vehicles per hour	Vλ =	133	vph
b. Advancing volume	Va = 133 + 20 + 0 =	153	vph
c. Proportion of left turns in Va	L = Vλ ÷ Va = 133 ÷ 153 =	87	%
d. Opposing volume	Vo = 0 + 24 + 6 =	30	vph

∴ **A left-turn lane is not warranted**



Alberta Transportation Intersection Improvement Warrant Analysis

Project Number: 2714.T01
Project Name: Gilead Foundation TIA
Intersection: Township Road 110 & Site Access
Roadway: Township Road 110
Direction: EB
Time Period: PM Peak
Scenario: Post Development
Design Speed: 90 km/h

1. **Warrant for Right-Turn Lane.** To warrant an exclusive right turn lane at a two-lane highway intersection in Alberta, the following three conditions must all be met:

a. Main Road (Twp Rd 110)	AADT ≥ 1800 vpd	1650	vpd	χ
b. Intersecting road (Site Access)	AADT ≥ 900 vpd	1670	vpd	√
c. Right-turn daily traffic volume	AADT ≥ 360 vpd	60	vpd	χ

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2. **Warrant for Left-Turn Lane.** When making a left turn into the driveway, the turning vehicle may be delayed by a vehicle or vehicles in the opposing stream. Through vehicles in the advancing stream following the left-turning vehicle may be delayed by, or exposed to collision with turning vehicle. The interference caused by standing left turning vehicles in the through advancing traffic can reduce capacity and create a safety hazard. The amount of interference is dependent on opposing volumes, advancing volumes and the number of left turning vehicles.

a. Number of left-turning vehicles per hour		Vλ = 0	vph
b. Advancing volume		Va = + + = 0	vph
c. Proportion of left turns in Va	L = Vλ ÷ Va =	0 ÷ 0 = 0	%
d. Opposing volume		Vo = + + = 0	vph

∴ **A left-turn lane is not warranted**

Alberta Transportation Intersection Improvement Warrant Analysis

Project Number: 2714.T01
Project Name: Gilead Foundation TIA
Intersection: Township Road 110 & Site Access
Roadway: Township Road 110
Direction: WB
Time Period: PM Peak
Scenario: Post Development
Design Speed: 90 km/h

1. **Warrant for Right-Turn Lane.** To warrant an exclusive right turn lane at a two-lane highway intersection in Alberta, the following three conditions must all be met:

a. Main Road ()	AADT ≥ 1800 vpd	0	vpd	χ
b. Intersecting road ()	AADT ≥ 900 vpd	0	vpd	χ
c. Right-turn daily traffic volume	AADT ≥ 360 vpd	0	vpd	χ

∴ **A right-turn lane is not warranted**

2. **Warrant for Left-Turn Lane.** When making a left turn into the driveway, the turning vehicle may be delayed by a vehicle or vehicles in the opposing stream. Through vehicles in the advancing stream following the left-turning vehicle may be delayed by, or exposed to collision with turning vehicle. The interference caused by standing left turning vehicles in the through advancing traffic can reduce capacity and create a safety hazard. The amount of interference is dependent on opposing volumes, advancing volumes and the number of left turning vehicles.

a. Number of left-turning vehicles per hour	Vλ =	10	vph
b. Advancing volume	Va = 136 + 14 + 0 =	150	vph
c. Proportion of left turns in Va	L = Vλ ÷ Va = 10 ÷ 150 =	7	%
d. Opposing volume	Vo = 0 + 9 + 6 =	15	vph

∴ **A left-turn lane is not warranted**