

Technical Memorandum

December 12, 2022

Project# 28420

To: Ryan Schera, Schnitzer Properties
From: Kristine Connolly, PE, Carla Kleynhans, and Diego Arguea, PE
Project: Basalt Creek Industrial Park
Subject: Trip Generation and Distribution Study

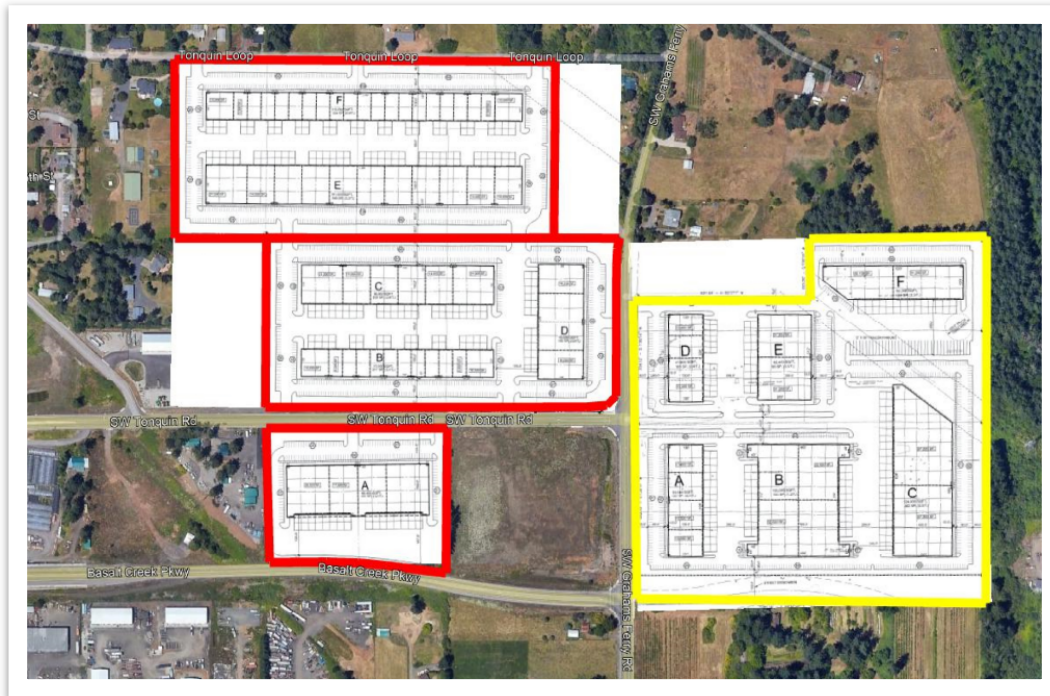
Basalt Creek Industrial Park is a proposed industrial park development located to the north of Basalt Creek Parkway and on both the eastern and western sides of SW Grahams Ferry Road. The current future zoning of the area is Manufacturing Park (MP). The development would like to broaden their allowable uses to include a mixture of wholesales, warehousing, and light manufacturing uses with a limitation on both warehousing and wholesales of 35% of the gross floor area on a development site allowed outright and a conditional use permit requirement to exceed the 35% limitation for each use. The broadened zoning currently being developed is referred to as the Basalt Creek Employment (BCE) Zone. However, this zoning still contains a size limitation to certain land uses. The proposed Basalt Creek development is thus proposing a text amendment to the draft BCE zoning.

This letter documents the comparison of the worst-case trip generation potential, the expected truck trip generation and assignment associated with the proposed development. This will be used as a supporting document for text amendment. **As shown below, the BCE text amendment worst-case trip generation will generate less trips compared to the MP trip generation.**

BASALT CREEK INDUSTRIAL PARK

Exhibit 1 is a concept layout for the proposed development. This layout was used to obtain an estimate of the Gross Floor Area required to determine the worst-case trip generation of the proposed industrial park. Based on the concept layout the development can be divided into several sites varying from two to twelve sites. The overall trip generation comparison outcome will remain the same however the number of trips generated, and the trip rate will increase the more sites there are. For simplicity, it is assumed that the industrial park will be developed as two separate sites. The areas indicated in red as the western site and the area in yellow as the eastern site.

Exhibit 1: Concept Layout



DEVELOPMENT CODES

The use categories and their limitations for the MP zone is based on the City of Tualatin Development Code Chapter 62 TDC 62.200 and TDC 62.210. An extract of these sections has been included in Appendix A. The land uses listed in the use categories table are the land use trip rates that were compared to obtain the worst-case trip rate combination. The main land use limitation is the size restriction, restricting all commercial uses to a total of 20,000 square feet allowed on site.

Ordinance 1418-19 relates to the Basalt Creek Concept Plan, amending various City of Tualatin development code chapters. This Ordinance is included in Appendix B and a draft version of the BCE zone is included in Appendix C. Similar to the MP Development Code, this draft provides the use categories and their limitations for the BCE zone and will form part of the City of Tualatin Development Code Chapter 65. The main difference between the MP development code and the BCE development code is the permitted use categories.

The MP permits:

- Eating and drinking establishment uses limited to a restaurant or deli
- Retail sales and services uses limited to:
 - sale of good produced on site
 - child day care
 - food or convenience store, mailing operations, reproductions or photo coping services, bank and medical service
- Light manufacturing uses limited to:
 - Manufacture and assembly of electronic or optical instruments, equipment, devices, musical instruments, toys, and sporting goods
 - Production of textiles or apparel
 - Printing, publishing, and lithography shops

- Research and development laboratories
- Primary processing of organic materials such as tanning of leather is prohibited.

The BCE permits:

- Eating and drinking establish without drive up or drive-through facilities
- Mobile food unit development
- Medical offices
- Retail sales and services uses limited to:
 - child day care center
 - all other retail sales and services uses without drive-up or drive-through facilities
- Light manufacturing uses except:
 - Machine shop
 - Building, heating, plumbing and electrical contractor’s offices with on-site storage of equipment or materials
 - Casting or fabrication of metals
 - Trade or industrial schools where industrial vehicles and equipment are operated
- Warehousing and freight movement uses limited to storage and distribution of goods produced on-site

BCE ZONE TEXT AMENDMENT

The proposed development is recommending various text amendments to the industrial land use categories in terms of land uses permitted and size limitations. The text amendment will allow for a mixture of wholesales, warehousing, and light manufacturing uses with a limitation on both warehousing and wholesales of 35% of the gross floor area on a development site allowed outright and a conditional use permit requirement to exceed the 35% limitation for each use.

TRIP GENERATION

The *Trip Generation Manual, 11th Edition* published by the Institute of Transportation Engineers in 2021, provides trip rates for various land uses. The average trip generation rates were used for the land uses indicated in the tables below, except were indicated differently.

Existing MP Zoning Trip Generation

The land uses with the highest trip rates per zone were combined to identify the worst-case trip generation. This combination was restricted by the maximum allowable size of certain land uses based on the development code. Refer to Table 1 for the estimated trip generation for the MP zone.

Table 1: Estimated Trip Generation for MP zone

Land Use	ITE Code	Size (sq ft)		AM Peak Hour		PM Peak Hour	
		West Site	East Site	Rate	Trips	Rate	Trips
Eating and Drinking Establishment	933	5,000	5,000	43.18	432	33.21	332
Health and Fitness Facility	492	12,000	12,000	1.31	31	3.45	83
Convenience Store	851	3,000	3,000	62.54	375	49.11	295
Research and Development	760	581,456	451,361	1.03	1,064	0.98	1,012
Total		601,456	471,361	1.74	1,871	1.53	1,639

Proposed Text Amendment BCE Trip Generation

The land uses with the highest trip rates per zone were combined to identify the worst-case trip generation per zone. This combination was not restricted by the size limitation as that is one of the text amendments proposed. Refer to Table 2 for the estimated trip generation for the text amended BCE zone.

Table 2: Estimated Trip Generation for the text amended BCE zone – Worst Case

Land Use	ITE Code	Size (sq ft)		AM Peak Hour		PM Peak Hour	
		West Site	East Site	Rate	Trips	Rate	Trips
Eating and Drinking Establishment	933	5,000	5,000	43.18	432	33.21	332
Health and Fitness Facility	492	5,000	5,000	1.31	13	3.45	35
Medical Office Building ¹	720	10,000	10,000	-	57	-	78
Light Manufacturing	140	377,946	293,385	0.68	457	0.74	497
Wholesales	860	203,510	157,976	0.55	199	1.76	636
Warehousing	150	0	0	0.17	0	0.18	0
Total		601,456	471,361	0.92	984	1.47	1,578

¹ The trip rate equation was used to calculate the trip generation

Trip Generation Comparison

All the worst-case trip generation options were described above. Comparing the estimated trip generations for the different zonings it can be concluded that the MP will generate the highest number of trips. The text amended BCE will generate 887 fewer trips during the AM peak hour and 61 fewer trips during the PM peak hour compared to the MP zone.

TRUCK TRIP GENERATION

The expected truck trip generation is based on data obtained from the project team and supplemented by data collected in February 2019 at the 115th Street Industrial Park. This data is available in Appendix D. The industrial park land uses are well comparable to the land uses proposed by the Basalt Creek Industrial Park. The truck percentages and estimated truck trips per zoning type is indicated in Table 4.

Table 4: Estimated Truck Trip Generation

Land Use	Total AM Peak Hour		Total PM Peak Hour	
	Percentage	Trips	Percentage	Trips
MP Zoning	13%	243 trips	8%	131 trips
Text Amended BCE Zoning – Worst Case		128 trips		126 trips

It was estimated that up to 128 truck trips will be generated in the AM peak hour and 126 truck trips will be generated in the PM peak hour with the BCE text amendment in place. **This is lower than the truck trips generated with the MP zoning.**

TRIP DISTRIBUTION

The truck and vehicle distribution patterns will be different based on the trip origins and destinations.

The anticipated weekday AM and PM **vehicular** trip distributions are as follows:

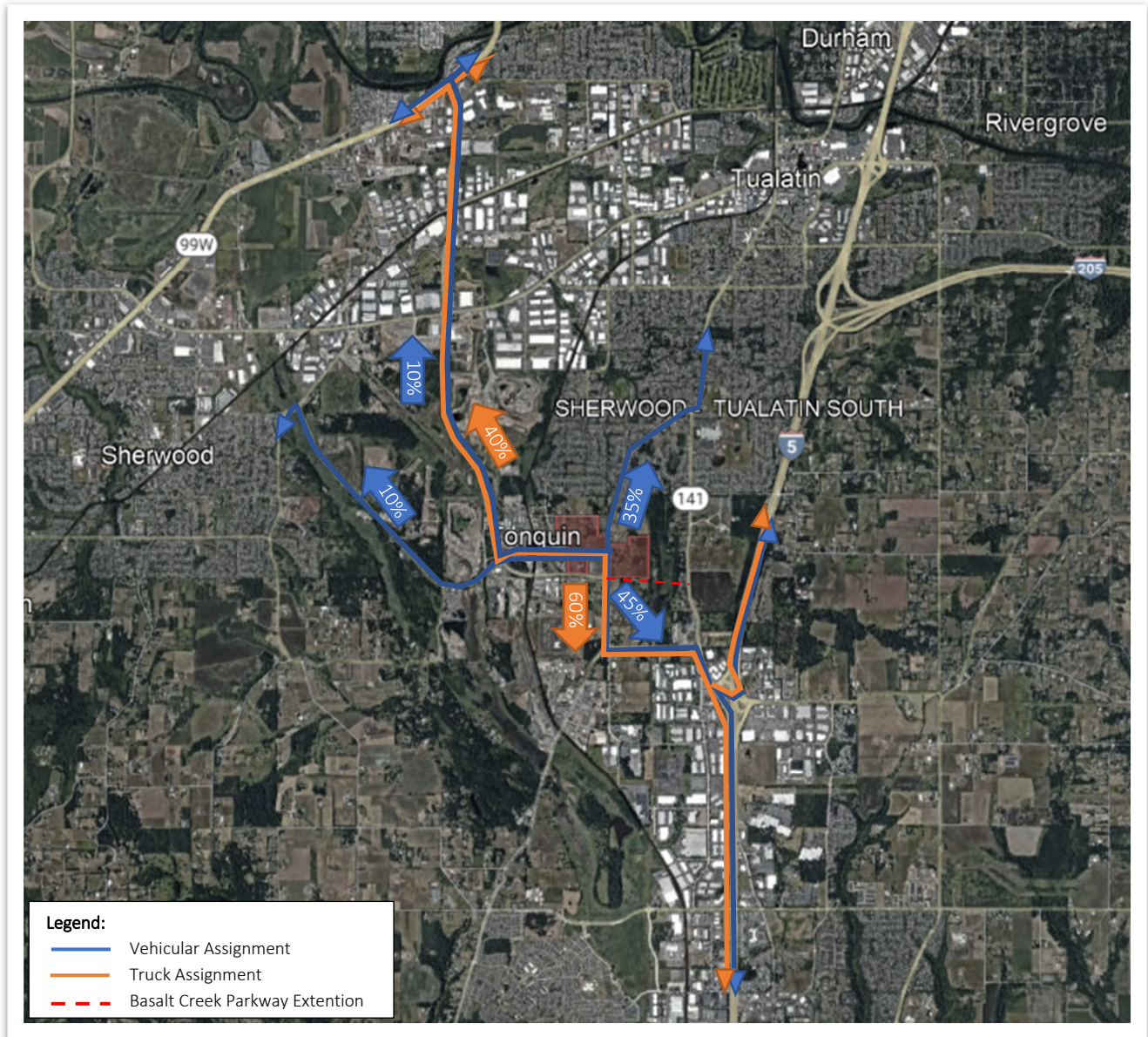
- 35% to the north via SW Grahams Ferry Road to Sherwood – Tualatin South
- 45% to the south via SW Grahams Ferry Road to the I-5 interchange
- 10% to the west via SW Tonquin Road to Sherwood – Tualatin North
- 10% to the west via SW 124th Avenue to Pacific Highway W

The anticipated weekday AM and PM **truck** trip distributions are as follows:

- 60% southwards via SW Grahams Ferry Road to the I-5 interchange
- 40% westwards via SW 124th Avenue to Pacific Highway W

The Basalt Creek Parkway Extension is proposed from Grahams Ferry Road to Boones Ferry Road. This will provide two routes to the I-5 interchange.

Exhibit 2: Trip Distribution



FINDINGS AND RECOMMENDATION

After comparing the worst-case trip generation for MP zoning, BCE zoning and BCE text amendment, it was concluded that the MP will generate the highest number of trips. **The BCE text amendment will generate the least number of trips and thus also generate the lowest number of truck trips.**

Please contact us if you have any questions or need further information.

Appendix A MP Zoning Extract

Appendix B Ordinance 1418-19

Appendix C BCE Draft Zoning

Appendix D Truck Trip
Generation Data
