EXHIBIT I

November 8, 2018

At the City's request, we are submitting the attached updated Parking Demand Study for 903 and 929 North State Street, which reflects the current program of 164 units and 513 beds of housing. This update does not change any of the conclusions or recommendations of the Parking Demand Study.

Sincerely,

Paulo Nunes-Ueno
Principal Nunes-Ueno Consulting

NUNES-UENO CONSULTING

903 and 929 North State Street
PARKING DEMAND STUDY

Contents

NUNES-UENO CONSULTING

Submitted to City of Bellingham April 23, 2018, Revision submitted November 8, 2018

Executive Summary

Based on an evaluation of the proposed project's characteristics and an analysis of travel behavior research drawn from national data and surveys of students conducted by WWU we conclude that the proposed project will generate significantly lower parking demand than a typical building of similar size and location in Bellingham. Students, the target tenant population of the proposed project, drive less, and take transit, bike and walk at higher rates than the general population. Specifically, the data show that a large number (approximately 3,000) non-freshmen students who live in off-campus housing in the immediate project area do not own cars. Further, our analysis leads us to conclude that given the right formula of price point, incentives, property management, and amenities, a strong market exists in Bellingham for housing targeted at a less auto-dependent demographic. In short, we find that the proposed use is inherently and demonstrably less auto-dependent than a typical residential or office building in the same location. Two additional points should be highlighted from our findings:

- First, based on inventory counts conducted in April 2018 for this study, Bellingham has substantial *unused* parking supply both on-street and off-street, which corroborates the findings of the 2013 Transpo Group Downtown Parking Study commissioned by the City. Unrestricted on-street parking within the study area was 66% occupied on weekdays and 48% occupied on Saturday. Restricted spaces were occupied on average at 57% on weekdays and 79% on Saturday. A significant supply of off-street stalls exists within a ten-minute walk of the proposed site. Of the almost 1,400 private off-street stalls within the study area, more than half are available for monthly rental at any given time, with over 15% unrented currently. Western Washington University has an additional 1,200 stalls dedicated to off-campus residents and available for quarterly rental.
- Second, to the extent that recent off-campus housing projects in Bellingham have caused adverse impacts on parking around their sites, those outcomes can largely be attributed to outdated parking management practices such as underpricing parking permits and overselling the available capacity.

This study includes proposed transportation mitigation designed for the project in question. This mitigation approach is based on a conceptual model of Travel Demand Management developed by Nunes-Ueno Consulting. The model posits that programs achieve effective, sustainable reductions in demand for auto travel (and related demand for car storage) when credible pressure is applied on four fronts simultaneously: Culture, Cost, Convenience, and the Built Environment. This holistic approach, when implemented in other projects has led to significant reductions in auto dependence.

Study Overview

The City of Bellingham's vision for a vibrant multi-use downtown that is "everyone's neighborhood" and provides jobs, housing, entertainment and services for a diverse and growing population[1] relies in part

[1] https://www.cob.org/documents/planning/urban-villages/downtown/downtown-plan.pdf

on striking a delicate parking balance: the right supply and correct management of parking are vital to achieving the desired outcomes of the Downtown Bellingham Plan's core visions and values. The approach that the City of Bellingham is taking to manage parking seeks that balance in the context of the 2013 finding that the current parking supply is expected to support growth in downtown until 2036 (Transpo Group, 2013)[2]. Specifically, the 2013 Transpo Group Downtown Parking Study counted 2,773 on-street and 6,695 off-street parking spaces within Downtown and concluded:

- "On-street parking was utilized at 50 to 60 percent while off-street utilization is 40-50 percent."
- "Future **parking demand** is anticipated at approximately **7,100 vehicles** without implementation of additional or new parking management strategies."
- "Future **parking supply** would be approximately **8,338 spaces** with redevelopment of public surface lots."
- "The parking supply would meet the projected demand."

By allowing reductions of required off-street parking through an administrative approval process and requiring proposed developments seeking reductions to demonstrate lower vehicle dependence and appropriate mitigation strategies, the City of Bellingham has created a parking management process capable of taking into account a specific project's context, design, ownership/management, location, use, and the existing available supply of parking in the area to produce the optimal amount of parking. This gives the City the flexibility to selectively and judiciously encourage high-quality development that does in fact have "lower vehicle dependence and appropriate mitigation strategies."

The proposed project consists of two parcels located at 903 and 929 North State Street, which are located within the City of Bellingham Downtown District Urban Village and the Commercial Core (CC) Downtown District Land Use Area. The applicant is seeking a waiver of approximately 50% of the code-required parking. Consistent with BMC 20.37.540, the purpose of this study is to evaluate (a) whether the proposed development is expected to be inherently less auto dependent than comparable properties and (b) to recommend mitigation measures commensurate with the requested parking variance.

This study contains a parking demand analysis based upon location factors, including density and land-use, street network connectivity, bike and pedestrian connections, and transit availability. The proposed development is in a dense and mixed-use neighborhood with a Walk Score of 90 considered a "Walker's Paradise" and is well served by transit and bike/pedestrian facilities and within proximity to various amenities, including food and entertainment. For context, the Walk Score of the proposed location is comparable to the eleventh most walkable neighborhood in Seattle, directly behind the University District and ahead of the Central District, Ballard, Greenwood, Fremont and Columbia City.

In addition, the study includes an analysis of the demographics of the proposed development. The project is expected to house WWU undergraduate and graduate students and young professionals with an age range of 19-24. Young adults, and especially full-time students, are typically less automobile

[2] https://www.cob.org/documents/planning/myddowntown/parking-study-2013-03.pdf

reliant that the general adult population. As a cohort, the Millennial age group “uses the transportation system differently than other Americans, relying less on cars and more on transit and biking, and frequently using multiple modes of travel as opposed to a single mode”, according to a 2014 “Millenials in Motion” study by USPIRG and the Frontier Group (2014)

Findings from the WWU student transportation surveys corroborate the national research that show high usage of walking and transit and lower rates of car ownership among younger people. Based on WWU student transportation survey data, we estimate that approximately 3,000 WWU sophomores, juniors and seniors live in off-campus housing in the Downtown and WWU neighborhoods immediately surrounding the proposed project and do not own a car. Student transportation surveys over the past 15 years indicate that WWU students primarily travel to campus by walking and riding transit. WWU students drive less than the general Whatcom County population and the bulk of their trips (regardless of mode) are getting to and from campus, as opposed to a more heterogeneous population that would generate more dispersed trip routes. Due to the relatively short distance (i.e. approximately ½ mile) of the proposed development from campus, driving does not offer time advantages over other modes and is significantly more expensive than the alternatives. The geographic factors covered above surfaced in the student transportation survey. In 2018, students who live downtown and near WWU used the bus and walked at higher rates and drove at considerably lower rates than the overall student population.

WWU manages parking by charging for permits for various types and durations, and it is recommended that the proposed project unbundle parking charges from rent. Studies show that car ownership is reduced significantly when parking is charged separately from rent in residential buildings.

The recommendations for proposed mitigation were developed using a proprietary conceptual model of Transportation Demand Management created by Nunes-Ueno Consulting and used by Seattle Children’s Hospital, the University of California Davis and Vanderbilt University, among others. The conceptual model theorizes that effective, sustainable reductions in demand for auto travel (and related demand for car storage) are most successfully realized with mitigation strategies that focus on four factors: Culture, Cost, Convenience (time), and the Built Environment. For the proposed North State Street project, mitigation strategies are described, along with expected impacts, outcomes, and developer considerations. Examples include enhanced bike parking, new resident orientations, and in-building car sharing.

About the Authors

Paulo Nunes-Ueno, Principal Nunes-Ueno Consulting

Paulo Nunes-Ueno is an expert in sustainable transportation and effective urban solutions for transit, mobility and parking. Before launching NUC Paulo served as Director of Transportation and Sustainability for Seattle Children's Hospital where he led the development of Seattle Children's Comprehensive Transportation Plan and the associated Seattle Children's Livable Streets Initiative. He went on to become Transit and Mobility Division Director at Seattle Department of Transportation where he was responsible for the innovating the city's transit, parking and shared mobility portfolio.

Andrea Hamre, PhD, Research Analyst

Andrea earned her PhD in Transportation Planning in the Urban Affairs & Planning program at Virginia Tech's School of Public & International Affairs in Alexandria, VA. She also earned a M.S. in Applied Economics at Virginia Tech. Her research uses quantitative methods to study travel behavior and focuses on: 1) commuter benefits; 2) transport justice; and 3) multimodality and sustainability.

Background

North State Street, LLC (the Applicant) is proposing to develop a two-building mixed-use project containing approximately 164 units in a mix of studios, two-bedroom, three-bedroom and four-bedroom units, totaling approximately 513 bedrooms. The proposed project consists of two parcels located at 903 and 929 North State Street which are separated by a 20' right of way. The proposed project will cater to sophomore, junior and senior undergraduate and graduate students at Western Washington University (Western or WWU) as well as young professionals who work in downtown Bellingham and seek an amenity-rich and walkable urban lifestyle similar. Students at Western typically live in residence halls on campus for their first year and then move off-campus.

The purpose of this study is to evaluate the expected auto-dependency and parking demand associated with the proposed project and recommend appropriate mitigation in conjunction with the applicant's proposed parking waiver.

Planning Context

Through careful planning and community involvement, the City of Bellingham has created a thriving, revitalized downtown. The 2014 Downtown Bellingham Plan's "Renewed Vision for Downtown" describes 10 core visions:

1. Downtown is a place **where people come to play, work, shop and live -** a vibrant and important community gathering place.
2. Downtown is **safe and friendly** for people of all ages, income levels and cultures.
3. Downtown continues to serve as **an economic engine for the City and region,** promoting a diverse economic environment that supports both local entrepreneurial ventures, as well as larger businesses.
4. Downtown is a **successful and desirable neighborhood** with a variety of housing choices and mix of uses.
5. Downtown protects and restores **natural resources** and incorporates environmentally-friendly elements into new projects.
6. Downtown's **network of public parks, plazas, trails and open space** is enhanced and interconnected.
7. Downtown values its **historic buildings** and encourages **compatible, high-quality new construction**.
8. Downtown's streets safely accommodate **many modes of travel**: pedestrians, bicycles, automobiles, transit and freight.
9. Downtown has a **thriving cultural and arts community** and its **lively public spaces** are local and regional destinations.
10. Downtown's **streetscape is active and comfortable day and night**, with pedestrian-scale lighting, street trees, landscaping, seating, and other coordinated amenities that establish a distinct identity.

In the City of Bellingham Climate Action Protection Plan from 2007, Mayor Douglas highlighted the opportunity to "reduce traffic and plan our city for alternatives to cars as our only way of getting around."[3] The plan goes on to highlight reduced traffic congestion, traffic calming, and improved air quality as benefits of acting to address climate change. The Plan includes "Target 25: Mode Shift Goal," which details the goal of reduced automobile use and increased use of walking, biking, and transit. Implementation of this goal was connected to "continued maturation of urban villages and encouragement of infill development." Achieving mode shift away from automobiles was expected to "result in a more pedestrian-oriented city that feels safer and is more attractive." The 2017 Draft Climate Protection Action Plan Update[4] affirms an ongoing goal of "a steady increase in other modes and concurrent decrease in the use of automobiles."

The City of Bellingham recognized that reduced parking requirements support these goals and followed through by creating reduced minimum parking requirements for development in the Downtown District Urban Village and an administrative process to allow flexibility in these requirements. The City of Bellingham allows the Director of Planning and Development to grant administrative waivers of minimum parking requirements when developments are deemed less auto dependent and proper mitigation is in place. Together these two provisions support the goals outlined above.

In addition, the 2013 Downtown Sub-Area Final Parking Study evaluated parking supply and capacity in downtown and found the supply is likely to support growth in downtown until 2036 (Transpo Group, 2013).[5] Clearly, parking is an important element that makes downtown work, but the right supply and correct management of parking are vital to achieving the values of the core visions of the 2014 Downtown Bellingham Plan.

By managing development to generate the right amount of parking without over supplying parking such that it reduces the quality of the built environment, the City of Bellingham can support the core visions in the Downtown Bellingham Plan, such as increasing shopping in the district, increasing the number of pedestrians and improving safety on the streets, and reducing congestion and emissions.

Induced Demand

The approach that the City of Bellingham is taking to manage parking is sound, especially in the context of the 2013 finding that the supply is likely to support growth in downtown until 2036 and research evidence of induced demand when too much parking leads to more driving.

Plentiful and cheap parking has been shown to induce demand for auto travel and depress biking, walking, and transit ridership. An innovative 2016 study by researchers at the State Smart Transportation Initiative applied the epidemiology-based Bradford Hill criteria to "infer with a reasonable amount of certainty that parking increases have contributed substantially to rising automobile use in cities"; as a result of their findings, the authors maintain "there is a strong case for restricting and reducing parking capacity in urban areas" (McCahill, Garrick, Atkinson-Palombo, and Polinski, 2016).

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[3] https://www.cob.org/Documents/pw/environment/2007-04-12-Greenhouse-gas-inv-rpt-and-action-plan.pdf

[4] https://www.cob.org/Documents/pw/environment/City%20of%20Bellingham%20Climate%20Protection%20Action%20Plan%20%20v1.3.pdf

[5] https://www.cob.org/documents/planning/mydowntown/parking-study-2013-03.pdf

In addition, the expense of building parking is borne by residents in the form of higher rents. As featured in a 2015 CityLab article,[6] "The High Cost of Residential Parking," a 2012 study by Portland's Bureau of Planning and Sustainability indicated that "rents climb as the parking options become more complex." Further, "more parking in a building doesn't just mean higher unit rents – it means fewer units, period." Parking thus also represents an opportunity cost in terms of foregone residential units, as well as other building features and neighborhood amenities. Indeed, "space is at a premium in many mixed-use districts, and every parking lot or garage represents a missed opportunity for additional shops, restaurants, and housing" (Weinberger and Karlin-Resnick, 2015). Following through on parking management therefore generates benefits in terms of "reduced development costs and increased affordability," as well as "improved design flexibility" to create "more functional and attractive communities" (Litman, 2016).

Spillover Effects

Parking management strategies, such as reduced requirements and unbundled parking and rental fees, generate a wide variety of benefits – but also raise an important concern: spillover effects. When residents of a development with managed parking avoid parking fees by parking on nearby residential streets, they produce "spillover" that can negatively impact the surrounding area. There are several strategies to monitor and manage spillover, including permit and time limit regulations, metered and priced street parking, and monitoring and reporting programs (Litman, 2016).

Three elements are needed to effectively manage spill over parking. First, mitigation centered on the trip generator that is sufficient to provide alternatives to driving and reduce demand for parking; second, adequate supply off-street to meet the mitigated demand; and third an effective off-street parking management program. By requiring developments to demonstrate lower vehicle dependence and appropriate mitigation strategies, the City of Bellingham ensures that projects present evidence of the first two elements described above. If effectively implemented, the range of existing on-street parking strategies the city of Bellingham has in place, including permits and enforcement in and around downtown, have the potential of effectively mitigating spillover effects.

Methodology

The parking demand study process included:

- A site reconnaissance visit on January 17, 2018
- Development and administration of an online survey instrument by the Western Washington University Office of Survey Research

[6] https://www.citylab.com/solutions/2015/05/how-parking-keeps-your-rent-too-damn-high-in-2-charts/392894/

- Collaboration with WWU Urban Planning Department's Campus Sustainability Planning Studio class
- Review of Bellingham Parking Study dated March 2013
- Review of academic peer-reviewed articles, independent research, and government reports on travel behavior and parking management
    - Key sources include "Contemporary Approaches to Parking Pricing" (FHWA, 2012), "Parking Management: Strategies, Evaluation and Planning" (Litman, 2016), Parking Reform Made Easy (Willson, 2013), and the King County Metro Transit Division's "Right Size Parking" project (2015); see full list of literature cited below
- Interviews with City of Bellingham Transportation Planner Chris Comeau January 11, 2018 and February 2, 2018
- On-street parking inventory counts four times per day collected on weekdays April 3, 4, 5 and Saturday April 14 conducted by the Transpo Group
- Interviews with representatives of private parking facilities in Downtown Bellingham and managers of WWU parking department in the month of March and April

Project Location

The location of the proposed project includes two tax parcels along the northwest side of North State Street, southwest of East Laurel Street in downtown Bellingham, Washington. The two tax parcels total approximately 1.21 acres and are located in a commercial/residential area in the southern portion of the downtown area of the City of Bellingham. To the west, the parcels abut the South Bay Trail and alley. The proposed project is located within the City of Bellingham Downtown District Urban Village and the Commercial Core (CC) Downtown District Land Use Area. The location of the proposed project is indicated on Exhibit B.

Code Required Parking

The Bellingham Municipal Code applicable to parking for this development, BMC 20.37.540--the Downtown Urban Village Code—includes the following table of required parking ratios for residential developments:

Table 1. Downtown Urban Village Residential Parking Ratios

Studio	.5
1 Bedroom	.75
2-3 Bedrooms	1
For each Bedroom over 3 per Unit	.5

Based on the proposed project's unit mix, approximately 200 parking stalls are required under Code. The City of Bellingham code does provide for some flexibility in the parking requirement through BMC 20.37.540:

> *The planning and community development director may administratively reduce parking for uses that are inherently less auto dependent and for mitigation provided in lieu of the parking reduction. Mitigation may be accomplished through adoption of a program, fee-in-lieu, and installation of infrastructure that promotes use of alternative transportation and less auto-dependence. Such uses, programs or infrastructure improvements may include but are not limited to senior and affordable housing, implementation of shared car services (i.e. Zipcar), enhanced bike storage, purchase of WTA Transit passes through the Urban Villages Trip Reduction Credits (BMC 19.06.040E--Table 19.06.040B), installation of covered transit shelter where approved by WTA, Public Works Department, and offsite pedestrian improvements. The applicant must demonstrate to the satisfaction of the director, how the proposed mitigation will be adequate and proportionate to the requested parking reduction. Parking reductions in this section cannot be combined with those allowed in BMC 20.12.010.*

Pursuant to this section of the code, the applicant is seeking a waiver of approximately 50% of the code-required parking. The purpose of this study is to evaluate (a) whether the proposed development is expected to be less auto dependent and (b) to recommend mitigation measures commensurate with the reduction requested.

Location Factors

The potential parking demand associated with the proposed development is based on the building's location, the expected demographic characteristics of the tenants, and the management (i.e. pricing) of the parking supply in the building and on the surrounding streets. The following geographic factors were analyzed to evaluate the extent to which they influence tenant travel behavior:

Density and Land-use

Higher density and mixed-use developments tend to be associated with lower levels of auto use than lower density and single-use developments, by measures such as daily vehicle mileage, mode choice, and vehicle ownership.[7]

[7] Density is one of the "five Ds" of the built environment commonly studied in relation to travel behavior, along with diversity of land uses, design of street networks, destination accessibility, and distance to transit (TRB 2009). A study funded by the Washington State Department of Transportation (Frank and Pivo, 1994) evaluated the impact of density and mixed-use development on travel in the Puget Sound region, and found single-occupancy vehicle travel to be inversely correlated with density and mixed-use development. For extensive discussions on the topic, "Land Use Impacts on Transport: How Land Use Factors Affect Travel Behavior" (Litman 2017) and "Driving and the Built Environment: The Effects of Compact Development on Motorized Travel, Energy Use, and CO2 Emissions" (TRB 2009); see also Cevero and Kockelman (1997), Bhat (2007), Chatman (2008), and Ewing and Cevero (2010)

Street Network

Greater street network connectivity and intersection density are associated with increased walkability and transit use. Connected street grids enable more direct and convenient travel between origins and destinations by reducing trip distances and facilitating transit connections. Meanwhile, circuitous networks with features such as cul-de-sacs create barriers for walking and transit use, reducing their viability for daily travel. A lack of safe pedestrian crossings on high capacity arterial roads can also impose barriers for safe use of alternatives to driving.[8]

Bike and Pedestrian Networks

Bicycle paths and dedicated on-street facilities result in separation from traffic that improves the safety and comfort of bicycling, making it a more feasible and attractive travel option.[9] Similarly, separation from traffic and safe crossings encourage walking. Facilities supporting walking and biking also improve transit access.[10]

Transit

Frequency, reliability, and network coverage are important factors influencing transit use.[11] One approach to facilitating high quality transit is the use of pulse-timetables, which enable efficient transfers at network nodes; Whatcom Transit Authority (WTA) uses the pulse approach at the downtown bus center.[12]

Findings Related to the Proposed Location

Summary

The proposed project is located within the City of Bellingham Downtown District Urban Village and the Commercial Core (CC) Downtown District Land Use Area and is well served by transit, sidewalks and bike facilities. The relatively dense and mixed-use character of the neighborhood provides many destinations within walking distance. However, North State Street lacks signalized pedestrian crossings near the proposed development. In addition, a one-seat ride to WWU (a destination expected to be in high demand) is not currently available on the transit route adjacent to the proposed development

[8] For an overview, see "Road Connectivity: Creating More Connected Roadway and Pathway Networks," by Todd Litman of the Victoria Transport Policy Institute.
[9] As Peter Furth summarizes in Chapter 6 of City Cycling, U.S. cities with more dedicated bicycling infrastructure tend to have higher rates of bicycling (2012); see also Dill and Carr (2003), Buehler and Pucher (2012), and Sanders (2013).
[10] For example, Agrawal, Schlossberg, and Irvin (2008) found safety factors to significantly impact pedestrian route choices in transit access trips.
[11] For overviews of factors impacting transit use, see TRB (2000) and Pucher (2004).
[12] For further discussion of integrated pulse-timetables, see Mees (2010).

Walkability

Walk Score is a widely accepted measure of walkability in the transportation, planning, and real estate sectors, and a leading source of neighborhood-level data. The Walk Score methodology was developed by a professional advisory board[13] and has been validated by leading academic researchers. For each address, Walk Score analyzes hundreds of walking routes to nearby amenities. Points are awarded based on the distance to amenities in each category. Amenities within a 5-minute walk (.25 miles) are given maximum points. A decay function is applied such that more distant amenities receive fewer points, and amenities beyond a 30-minute walk receive no points. Walk Score also measures pedestrian friendliness by analyzing population density and road metrics such as block length and intersection density.[14]

Figure 1. Walk Score Descriptions

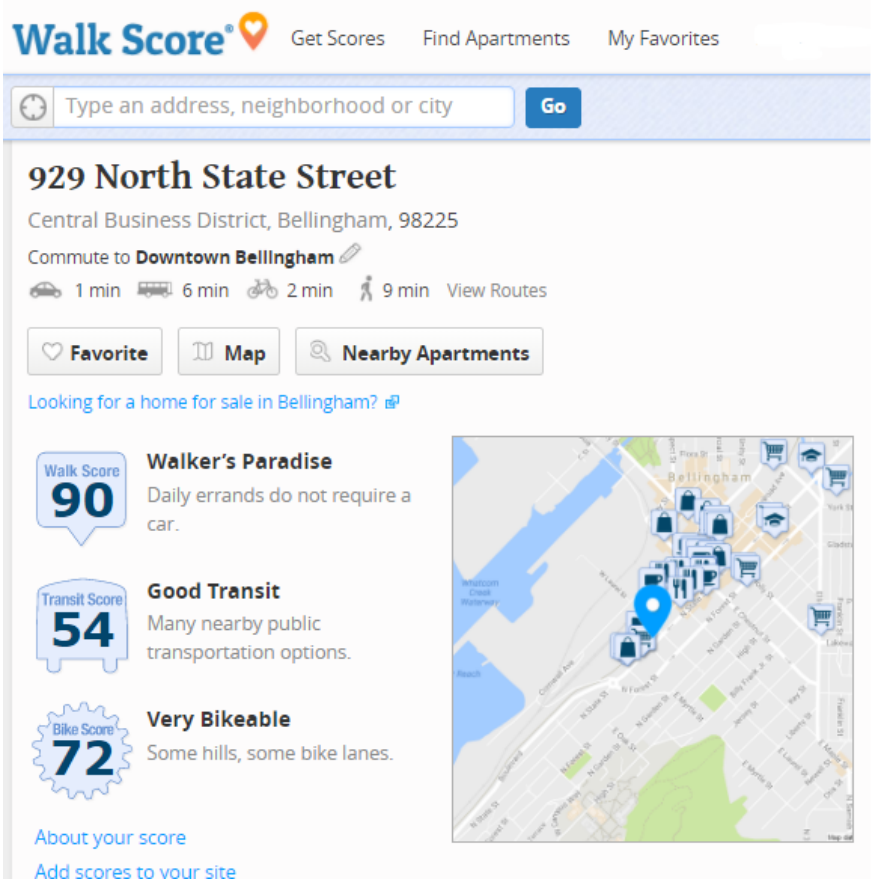
Walk Score®	Description
90–100	**Walker's Paradise** Daily errands do not require a car.
70–89	**Very Walkable** Most errands can be accomplished on foot.
50–69	**Somewhat Walkable** Some errands can be accomplished on foot.
25–49	**Car-Dependent** Most errands require a car.
0–24	**Car-Dependent** Almost all errands require a car.

The Walk Score for Bellingham as a whole is 49, compared to the scores for top 10 cities such as New York (#1 at 89.2), Seattle (#7 at 73.1), and Long Beach (#10 at 69.9). However, Walk Scores are location specific and naturally vary widely across most cities. As a result, the neighborhood and block-level Walk Scores are most relevant for assessing the walkability of a given project and the propensity for residents to use non-automobile forms of transportation.

The proposed location is less than a mile from both WWU and the center of downtown Bellingham and has a “Walker’s Paradise” Walk Score of 90, meaning “daily errands do not require a car.”

[13] https://www.walkscore.com/advisory-board.shtml
[14] Data sources used by Walk Score include Google, Education.com, Open Street Map, the U.S. Census, Localeze, and places added by the Walk Score user community.

Figure 2. Walk Score for 929 North State Street



The Walk Score of the proposed location is therefore comparable to the eleventh most walkable neighborhood in Seattle, WA, directly behind the University District and ahead of the Central District, Ballard, Greenwood, Fremont and Columbia City.

By way of comparison, the Walk Scores of NXNW (North by Northwest) and The Gather, both recently opened privately-owned student housing projects in Bellingham, are 55 and 86 respectively.

Table 2. Seattle Neighborhood's Walk Score

Seattle Neighborhoods

Rank	Name	Walk Score	Transit Score	Bike Score	Population
1	Downtown	99	100	67	5,059
2	Pioneer Square	98	100	62	4,159
3	First Hill	97	99	74	9,294
4	Belltown	97	99	77	14,163
5	International District	97	100	69	3,396
6	Yesler Terrace	94	100	72	4,126
7	Lower Queen Anne	92	72	56	10,241
8	South Lake Union	92	88	72	4,054
9	Capitol Hill	91	80	69	29,310
10	University District	91	77	85	26,712
11	Central District	88	72	80	12,874
12	Ballard	87	53	80	17,010
13	Greenwood	85	54	72	16,190
14	Fremont	84	63	77	11,994
15	Columbia City	84	61	55	6,648

Across related measures, the North State Street location of the proposed development is comparable to the University and Central Districts in terms of walkability, the Ballard and Greenwood areas in terms of transit accessibility, and the Yesler Terrace, Greenwood and South Lake Union areas in terms of bikeability.

Table 3. Proposed Project Walk Score Compared to Select Seattle Neighborhoods

	Walk Score	Transit Score	Bike Score
Proposed Project, CBD Bellingham	90	54	72
Yesler Terrace, Seattle			72
University District, Seattle	91		
Central District, Seattle	88		
Ballard, Seattle		53	
Greenwood, Seattle		54	72
South Lake Union, Seattle			72

Frequent Transit Service

The building is served by the WTA "Downtown to Fairhaven" route, which maintains 15-minute headways during much of its service hours. Though it doesn't serve the WWU campus directly, the route makes a timed transfer at Bellingham Station with the routes 107,108 and 92 to campus. The Blue Line of WTA's frequent service corridors is about ten minutes away on foot from the proposed location. Average wait times are typically about half of the headway time, so with 15-minute headways, users can count on short waits and will not need to carefully follow a schedule.

Figure 3. WTA Downtown Route Map

Universal Transit Passes

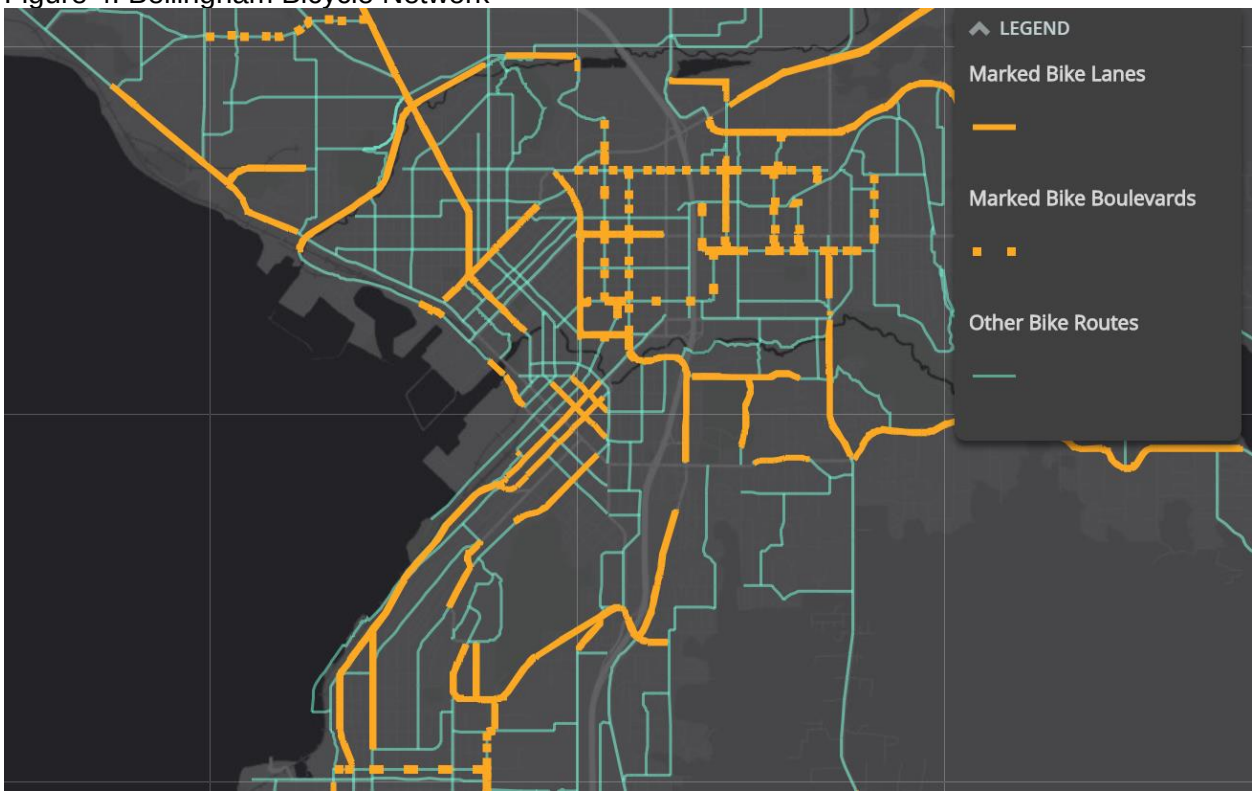
Every Western student has a pre-paid WTA pass. Universal pass programs have been shown to greatly increase transit ridership among populations with access to passes.[15] Though transit is not the most direct route to campus, the frequency of service and fare-free experience will likely make transit a viable choice for many members of the community.

Connected Bike Network

North State Street's buffered bike lane connects well with Bellingham's growing network of bike lanes, bike boulevards, and bike routes.

[15] Brown, Hess, and Shoup (2001) reviewed 35 university unlimited access programs, and found an increase in ridership of 71-200% in the first year, and continued growth of 2-10% in subsequent years. See also Boyd, Chow, Johnson, and Smith (2003) for their analysis of a UCLA campus program.

Figure 4. Bellingham Bicycle Network



Traffic Study

The Transpo Group has been commissioned to perform a traffic study for the project to evaluate the level of impact to the city's transportation network. As part of the study, a trip generation analysis was created. The project trip generation estimates were based trip rates contained in the Institute of Transportation Engineers (ITE) Trip Generation, 10th Edition, 2017 for student housing as well as consideration of student travel mode surveys from Western Washington University (WWU) and input from City staff.

Trips generated by the project were calculated using the ITE Off-Campus Student Housing (Land Use #225) land use. Vehicle trips were further reduced based on results from the recent WWU student travel mode surveys as well as consideration of the proposed project transportation demand management program and the location of the development proximate to downtown and transit. Vehicle trips were reduced by approximately 40 percent.

The existing site land use was considered to determine net new vehicle trips. This credit of existing number of vehicles was calculated by City staff, using Specialty Retail Center (Land Use #826) from the Trip Generation Manual, 9th Edition. Table 1 summarizes the estimate weekday PM peak hour net new vehicle trips for the proposed project.

Table 3. Estimated Weekday PM Peak Hour Project Trip Generation

Land Use	Size	Total	In	Out
Future				
Off-Campus Student Housing (#225) [1]	480 Bedrooms	144	75	69
Vehicle Trip Reduction[2]	*40%*	*-57*	-30	-27
Existing				
Specialty Retail (#826)[3]	20,960 sf	-43	-22	-21
Net New Project Trips		**44**	**23**	**21**

Source: Transpo Group, JanuaMarch 2018. Notes: sf = square-feet

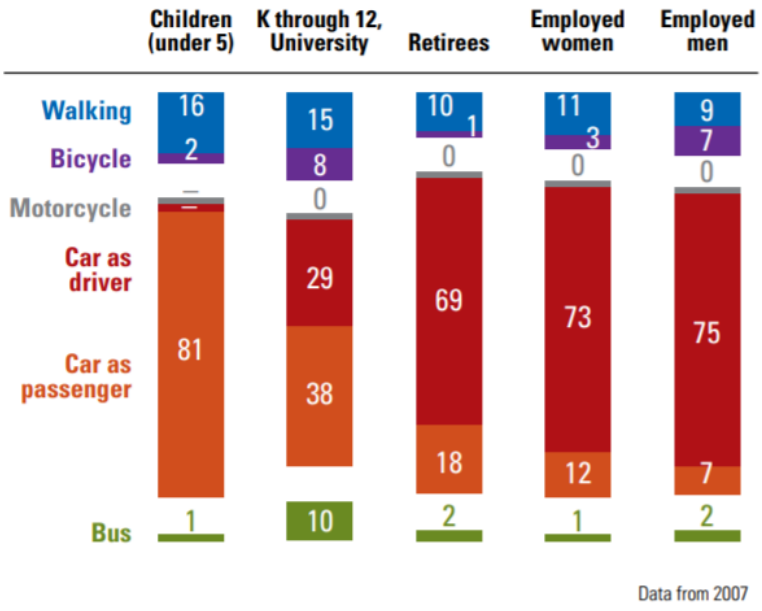
1. Based on average trip rate from ITE *Trip Generation*, 10th Edition.
2. Trip reduction accounts for additional non-auto travel that would occur considering the location of the development and travel behaviors of WWU students. 40 percent was based on travel mode survey results from WWU 2018 study and feedback from City.
3. Based on trip rate from ITE *Trip Generation Manual*, 9th Edition as directed by City staff.

As shown in the table, the estimated traffic generated by the project would be approximately 44 net new PM peak hour trips with 23 inbound and 21 outbound trips.

Demographic Factors

The proposed development is expected to house undergraduate and graduate students from Western Washington University, as well as some young professionals. The majority of residents will range in age from 19 to 24 years old, with an average expected age of 21. Young adults, especially full-time students, tend to own fewer vehicles than average, mainly due to the significant expense associated with vehicle ownership. This translates into fewer vehicle miles of travel. In 2009, 16-24 year-olds had a national average of 17.4 vehicle miles of travel per day, 33% lower than the overall average of 25.8 (Santos 2011). A 2007 study commissioned by Whatcom Council of Governments indicated that students drove considerably less than adults in the labor force, resulting in greater reliance on walking, biking, and transit (Whatcom Smart Trips Program, 2012):

Figure 4. Mode Share by Demographic Group in Bellingham



Source: Whatcom Smart Trips Program, 2012.

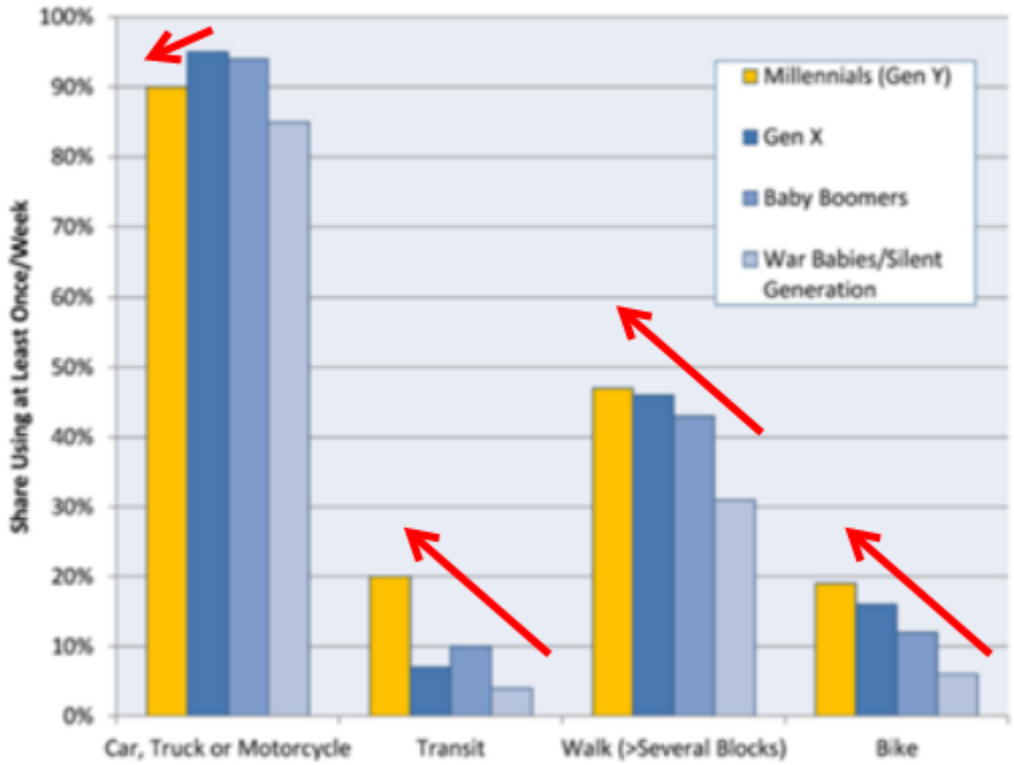
National Trends

A comparative study of student travel at four Virginia universities found that students make fewer trips by car than the general population, and correspondingly more trips by walking and biking (Khattak, Wang, Son, and Agnello, 2011); a related study of one Virginia university found students living on or near campus made fewer auto trips than students traveling greater distances to reach the university (Wang, Khattak, and Son, 2012).

In addition, there is evidence that vehicle reliance in the U.S. may be “peaking” across all age groups. A series of reports by researchers at the University of Michigan Transportation Research Institute indicate that fuel consumption, distances driven, and licensure were lower in the 2000s compared to the 1990s. A 2016 study of changes in licensure found a continuous decrease in the share of persons with a driver’s license between 1983 and 2014, including among young adults. The share of licensed 20-24 year-olds declined by 15%, from 91.8% in 1983 to 76.7% in 2014 (Sivak and Schoettle, 2016). Additional reports indicated vehicle distances driven were 5%-9% lower in 2011 compared to 2004 (Sivak 2013) and that fuel consumption decreased by 11% between 2004 and 2012 (Sivak 2014). The UMTRI researchers suggested that the decreased levels in motorization have the potential to be durable, rather than temporary; similarly, Sundquist and McCahill (2015) conclude that “the relative slow growth or decline in automobile use is likely to continue over the long term.” Per capita VMT is below the 2004 peak and young adult licensure remains below levels observed in 2011 as well as the 1990s (Dutzik 2017).

While a variety of factors may contribute to explaining “peak” travel trends, one factor may be a generational culture shift. As a cohort, the Millennial age group “uses the transportation system differently than other Americans, relying less on cars and more on transit and biking, and frequently using multiple modes of travel as opposed to a single mode”, according to a 2014 “Millenials in Motion” study by USPIRG and the Frontier Group (2014). Extrapolating from well-established patterns in the data, many perceive younger age cohorts (i.e. Millennials and especially those in Generation Z, born from the mid-1990s to the early 2000s) as having a more utilitarian, mode-neutral approach to transportation that corresponds with a diminished prioritization of car ownership and use, compared to their older counterparts.

Figure 5. The Transportation Patterns of Different Generations Shows Two Clear Trends: (1) Over Four Generations, Each Successively Younger Generation Walks, Bikes and Takes Transit More than its Preceding Generation; and (2) The Baby Boomers and Gen X represented “Peak Car” from a Transportation Choices Perspective.

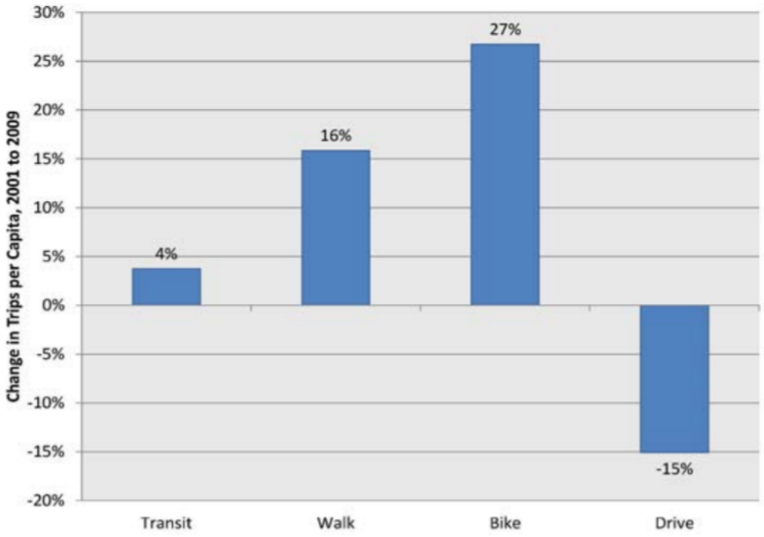


Source: USPIRG and Frontier Group, 2014.

The study details a sharp decline in driving among 16-34 year-olds from 2001 to 2009, and points to a larger change in behavior in areas with many young people, such as Bellingham (USPIRG and Frontier Group, 2014):

Areas with large youth populations have tended to experience greater changes over the last several years. College towns have consistently led the list of cities that have experienced the greatest surge in bicycle commuting since the mid-2000s.

Figure 5. Change in Mode Use 2001 to 2009 for 16-34 Year Olds



Source: USPIRG and Frontier Group, 2014.

Findings from WWU Student Travel Data

Because most of the prospective residents of the proposed project belong to an easily identifiable demographic--undergraduate and graduate WWU students living off campus-- it is relevant to examine data specific to the travel habits and preferences of this specific population. The Western Transportation Survey was created in 2010 as a joint effort between WWU's Office of Sustainability and Office of Survey Research, and administered in 2010, 2015, and 2018.[16] These surveys represent a valuable source of data to inform the estimated parking demand for the proposed development. The following discussion highlights key findings from these student transportation surveys and includes results for sophomores, juniors, and seniors as well as students living off campus.

The survey asked respondents about their use of transportation, the purpose of trips, as well as their home location, and demographic details such as year in school and gender. The geographic question asked students to identify whether they live within the area encompassed by the map below, and if so to specify in which map sector they reside:

[16] In 2010 and 2015, the survey was administered to second-year and graduating seniors, while the 2018 survey was administered to all undergraduates. The most recent survey was administered in January and February 2018 and received 4,631 responses (corresponding to a 33.6% response rate).

Figure 6. WWU Transportation Survey Home Location Zones with Proposed Project

In the 2018 survey, 91% of students reported living within the area encompassed by the above map. Among those living within the map area, a large share of students live in Map Sectors 1 (Downtown, 14%) and 2 (WWU, 46%), along with Sector 3 (Fairhaven, 17%). Sectors 1 and 2 are shown bounded in red. Within Map Sector 2 (WWU), 63% of students live on campus while 37% live off campus. The proposed project is on the southwest corner of Sector 1, just north of Sector 2. Therefore, it is informative to investigate the survey results for students who reported living in Sector 1 as well as Sector 2, as students living in these areas most represent the prospective tenants of the project. In the following discussion, 2018 survey data was filtered to exclude freshman and students living on campus to make the results as comparable as possible to the proposed development.

Key Findings from Student Transportation Surveys

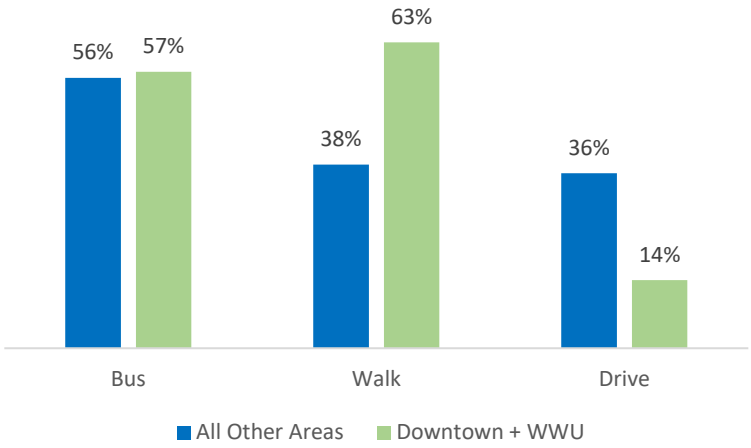
Findings from the WWU student transportation surveys generally corroborate the national research that show high usage of walking and transit among younger people. In addition, analyzing survey responses by geography indicates that respondents who live closer to campus in the two areas nearest the proposed development drive much less frequently than the WWU student population at large. Across trip purposes, a sizeable share of students reported car use that is less frequent than daily (e.g. several times a week or month). As a result, a focus on car sharing at the proposed development may facilitate the travel needs of students who only require weekly, monthly, or even less frequent access to cars.

Transportation Choice

Over the past eight years, WWU students have relied heavily upon walking and transit. By comparison, students have driven alone to campus at much lower frequencies. In each of the surveys, students walked and rode transit at least three times per week at much higher frequencies than they reported driving alone to campus.[17] In 2018, students who live downtown and near WWU used the bus at similar rates, walked at much higher rates and drove at considerably lower rates than the student population in other areas.

[17] For reference, 67% of workers who live Bellingham City and 74% of workers who live in Whatcom County commute by driving alone. Calculated using data from Table DP03 ("Selected Economic Characteristics") of the American Community Survey 2012-2016 5-Year Estimates.

Figure 7. Sophomores, Juniors and Seniors who took these modes 3+ days per week to campus[18]



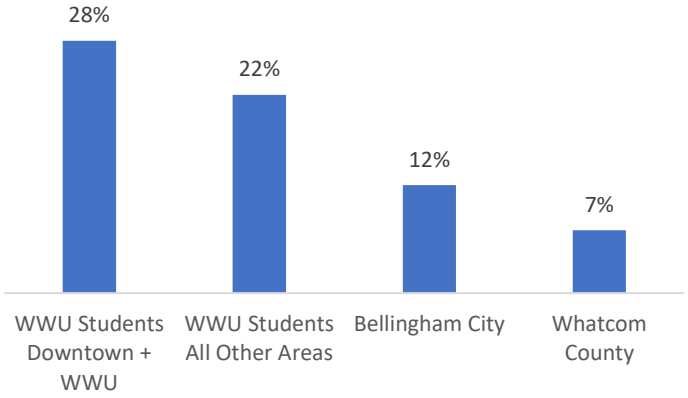
Car Ownership

In the 2018 survey, **28% of students in their sophomore year and beyond who live in Downtown and WWU neighborhoods reported they do not own a car** while 22% who live in all other areas report they do not own a car. These are much higher car-free rates than the share of all households in the City of Bellingham (12%) and Whatcom County (7%) without cars.[19] Based on these responses and the student population (approximately 11,500 sophomores, juniors, and seniors), we **can infer that approximately 3,000 WWU sophomores, juniors and seniors live without a car** in Bellingham. If WWU enrollment increases and national driving trends go up the car-less population can be expected to grow.

[18] Prepared using data from the 2018 WWU student surveys, collected by the WWU Office of Survey Research and Office of Sustainable Transportation.

[19] Calculated using data from Table DP04 ("Selected Housing Characteristics") of the American Community Survey 2012-2016 5-Year Estimates.

Figure 8. Car-Free Rate Population; WWU Students vs. City of Bellingham and Whatcom County[20]



Car Use Patterns

Those who do own cars report usage patterns that are far less frequent than adults in the workforce, with only 51% who use their cars nearly every day.[21] Students who live in Downtown and WWU are much less likely to be daily drivers at 31%.

Propensity to Consider Living Without a Car

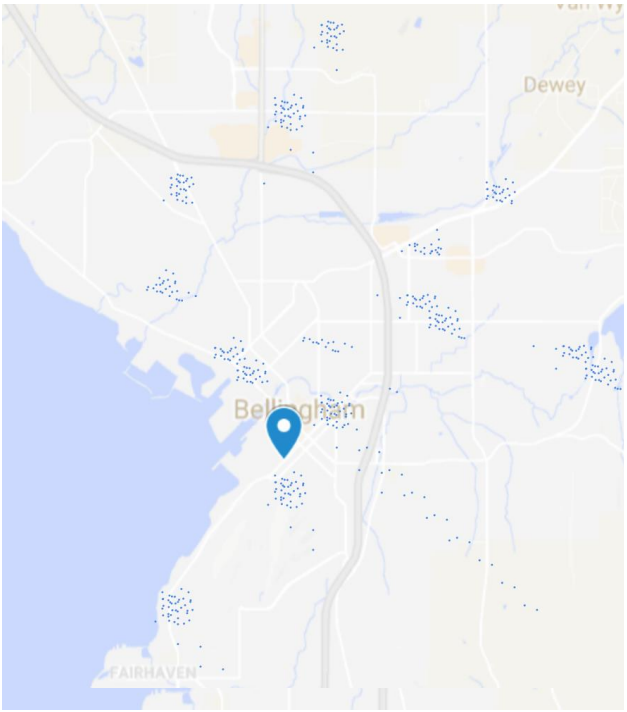
Consistent with national trends, WWU students express a strong openness to car-free living. Nearly half of students who live Downtown and WWU and have a car are open to not having one while at WWU. When asked what factors might allow them to not have a car while at Western, students listed help with traveling home on holidays and weekends, easier carpooling, and more ride-hailing as the most important factors.

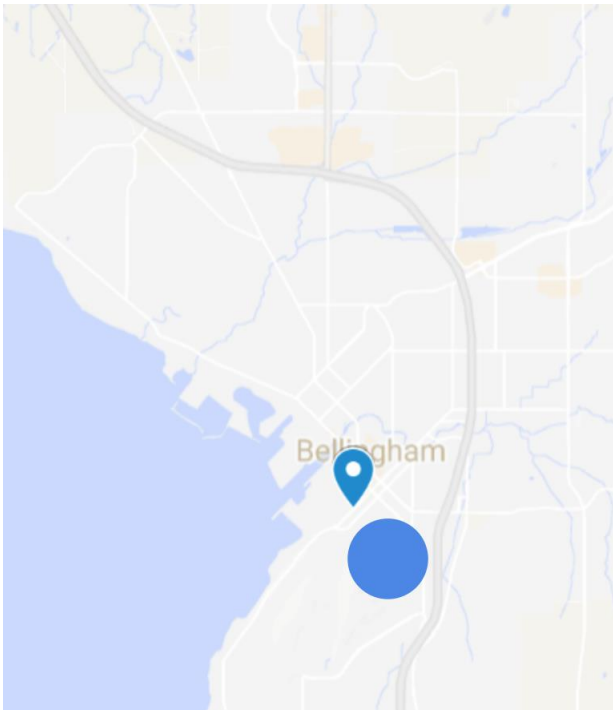
[20] Prepared using data from the 2018 WWU student surveys, collected by the WWU Office of Survey Research and Office of Sustainable Transportation, and data from Table DP04 ("Selected Housing Characteristics") of the American Community Survey 2012-2016 5-Year Estimates.

[21] As discussed in the Demographics section above, a 2007 study for Whatcom Council of Governments indicated that students drove considerably less than adults in the labor force (Whatcom Smart Trips Program, 2012). Nationally, young adults travel fewer miles per day in vehicles than the overall average (Santos 2011).

Origin and Destination Study

Figure 9. Typical 400-resident Building Commute Pattern v. Proposed Project





Residents of a typical building commute to points throughout the region

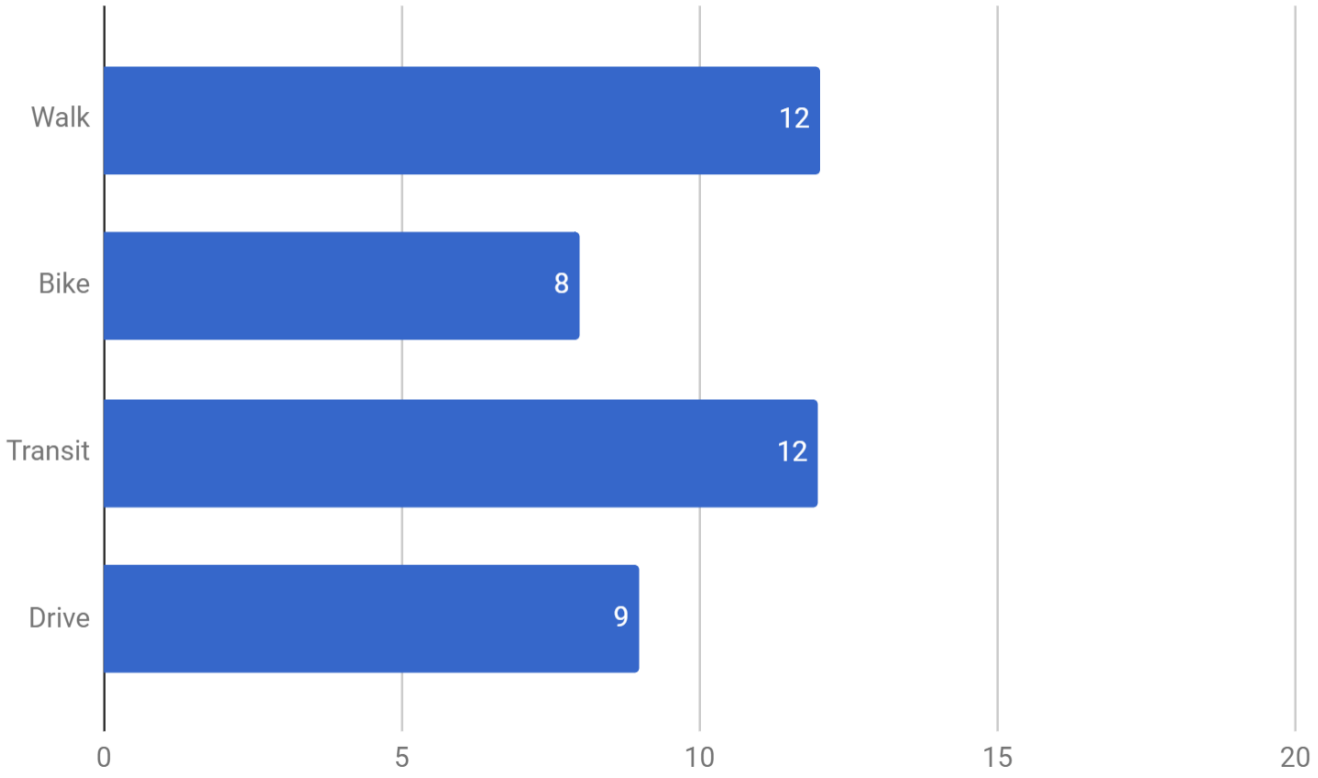
The majority of the proposed project's residents will commute less than 1 mile to WWU

The proposed project differs from the typical multi-family residential building in that the vast majority of residents will commute to a single location. Whereas it may be difficult to accurately assess the time and cost competitiveness of different modes of travel for a typical building with commuters traveling to a multitude of destinations, the evaluation of trip characteristics across modes is more straightforward for the proposed off-campus student housing development.

The tables below show a comparison of trip time, cost, and convenience from the proposed development to Red Square on the WWU campus on different modes of travel. The travel times come from Google maps and the cost assumptions only include marginal costs such as parking and fuel. A representative amount $65 was used as the monthly parking cost at the proposed development and Western's C/12A permit, $90/quarter was used for the cost of parking on campus. The comparison of convenience of different modes is based on availability of use at any given time and exposure to weather. Transit costs are bundled into activity fees for students such that, for the purposes of this comparison, transit costs are assumed to be $0.

Due to the relatively short distance of the proposed development from campus, driving does not offer significant time advantages over other modes. Driving to the WWU parking lot on Frank Jr. Street takes 4 minutes but walking from the parking facility to Viking Union takes another 5 minutes for a total of 9 minutes—this assumes no time searching for a parking spot, so likely total trip time driving could be expected to be higher when parking lots are nearing capacity. By comparison biking is 8 minutes[22] and transit is 12 minutes. Walking takes 10-12 minutes according to students who measured the trip using stopwatches and Fitbits (See appendix 3).

Figure 10. Trip Time in Minutes. Proposed project to Viking Union.



The table below adds the elements of cost and convenience to the comparison. Because parking is charged at the Western campus and at the proposed development, driving becomes significantly more expensive than the alternatives. Driving also still involves at least a 5-minute walk in the weather to arrive at any campus destination.

[22] The WWU "Viking ebike Demonstration Project" offers free loans for up to a quarter (https://wp.wwu.edu/vikingebike/). Electric bikes assist riders in traveling comfortably with loads and across challenging topography.

Table 4. Trip Profile Comparison from Proposed Project to Campus

	Time	Cost	Convenience/Reliability
Walk	10-12 minutes	$0	Walking is available 24/7; but less attractive at night and in inclement weather
Bike	8 minutes	$0	Biking is also available 24/7 but less attractive at night and in inclement weather
Bus	12 minutes	$0	Transit is available approximately 6am-11pm, but unavailable outside service hours and less attractive at night.
Driving	9 minutes (including walk from parking lot)	$110/mo ($65 parking at building + $30 at WWU + $15 gas)	A private car is available 24/7. Parking on campus usually involves at least an 5-minute walk in the elements to most destinations. As parking occupancy rates go up *reliability of driving time is degraded due to uncertainty of finding an open parking stall.*

Parking Management[23]

A large body of research since the 1970s suggests there is a significant relationship between free parking and the likelihood that employees will drive to work.[24] While many employers in the Bellingham area provide free parking, many do not. Those that have implemented parking charges have seen a decline in driving.[25] WWU manages parking by charging for permits for various types and durations.

[23] For comprehensive discussions of research and best practices surrounding parking management and efforts to "right size" parking, see "Contemporary Approaches to Parking Pricing" (FHWA, 2012), "Parking Management: Strategies, Evaluation and Planning" (Litman, 2016), Parking Reform Made Easy (Willson, 2013), and the King County Metro Transit Division's "Right Size Parking" project (2015). Recent studies on the supply of parking in relation to travel behavior include "Parking in Mixed-Use U.S. Districts: Oversupplied No Matter How You Slice the Pie" (Weinberger and Karlin-Resnick, 2015), and "Effects of Parking Provision on Automobile Use in Cities: Inferring Causality" (McCahill, Garrick, Atkinson-Palombo, and Polinski, 2016).

[24] See, for example, Segelhorst and Kirkus (1973), Shoup and Pickrell (1980), Willson and Shoup (1990), Shoup (2005), and Hamre and Buehler (2014).

[25] The City of Bellingham Climate Action Protection Plan from 2007 includes parking cash out as a strategy to impact municipal operations: "allow city employees to cash in their unused municipal parking lot permit." (https://www.cob.org/Documents/pw/environment/2007-04-12-Greenhouse-gas-inv-rpt-and-action-plan.pdf)

Table 4. 2017-2018 WWU Parking Permit Rates

Permit Type	Quarterly	Academic	Summer	Annual
G/R	$102.00	$306.00	$85.00	$390.00
G 1/2	$51.00	$153.00	$42.00	$195.00
C/12A	$90.00	$268.00	$73.00	$340.00
A 1/2	$45.00	$134.00	$37.00	$170.00
G Carpool	$81.00	$243.00	$66.00	$309.00
26CP	$70.00	$211.00	$57.00	$268.00
Motorcycle	$19.00	$55.00	$15.00	$69.00
Motorcycle Trail	$0.00	$0.00	$0.00	$0.00
Commuter Coupon Code	$22.00			
Lincoln Creek	$26.00	$78.00		$93.00

Parking Charges Unbundled from Rent

In many cases parking costs are 'hidden' or 'bundled' into rent or other fees. This has the effect of increasing car ownership and making those who do not own cars pay for parking they don't use.[26] As described in a recent FHWA report, bundled parking "encourages car ownership because residential renters or lessees will see no financial gain from reducing their off-street parking needs"; in contrast, the "unbundling of parking" in residential settings "can directly impact travel behavior" (2012). Studies show that car ownership is reduced significantly when parking is charged at a residential building. For example, a study of residential parking in San Francisco found that unbundled parking combined with on-site car sharing was associated with significantly lower rates of vehicle ownership (Schure, Napolitan, and Hutchinson, 2011, as cited in FHWA, 2012). It is therefore recommended that the proposed project unbundle parking charges from rent.[27]

[26] Bundled parking also impacts housing affordability, because "the high cost of parking construction and maintenance drives up the cost of housing and reduces the supply of affordable housing" (King County Metro, 2015).

[27] The 2013 Downtown Sub-Area Final Parking Study for the City of Bellingham states that unbundled parking allows for "lower rents," "makes the tenant more aware of their purchase" of parking, and "ultimately can result in overall lower parking demand" The 2014 Downtown Bellingham Plan includes "Policy 8.14: encourage building owners and property managers to include parking as a separate line item in leases and sales agreements, also referred to as unbundling."

Metered and Time-Limited On-Street Parking

Street parking surrounding the proposed development is moderately regulated. The image below from the City of Bellingham shows the downtown parking inventory and their associated management protocol.

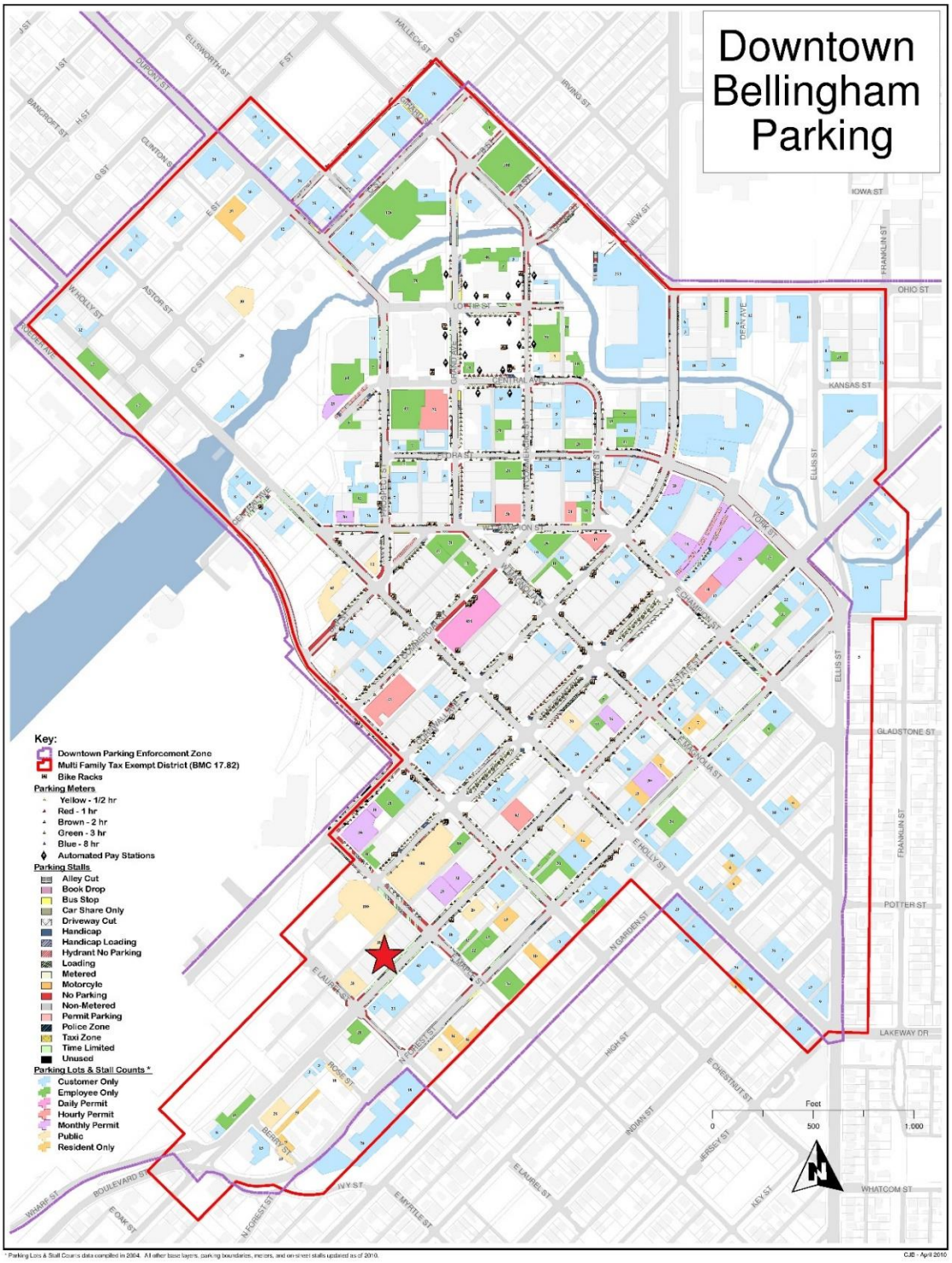


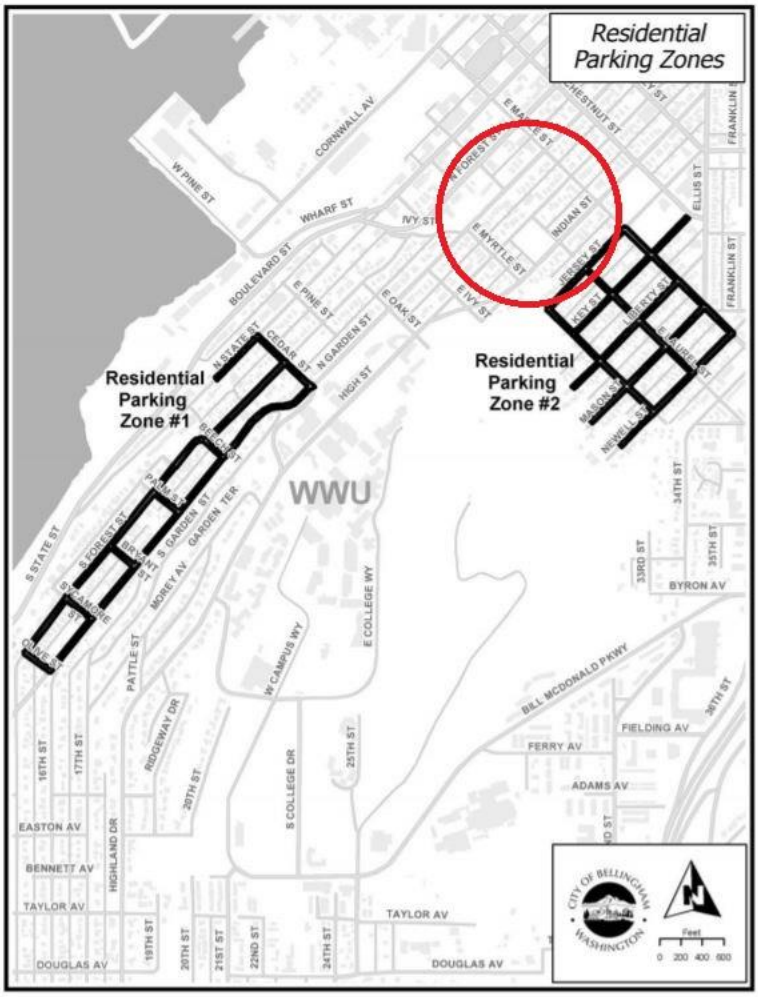
Figure 11. Downtown Parking Management District

In recent years, the City of Bellingham has added angled parking on the east side of North State Street and parallel parking on the east side; both are priced and time-limited. Portions of North Garden Street fall within a monthly permit boundary which moves west along Laurel to North Forest Street. The charges and time limits will discourage residents of the proposed development from generating "spillover" parking in the streets surrounding the building.

Residential Parking Zone

The nearest unregulated on-street parking is three blocks away on North Garden Street. The city should consider extending the monthly permit zone to cover North Garden to East Myrtle Street. Alternatively, the City of Bellingham's Residential Parking Zone could be expanded to include the areas bounded my East Market Street in the north, East Myrtle Street in south and Forest Street in the West to maintain curb-side parking capacity on those blocks.

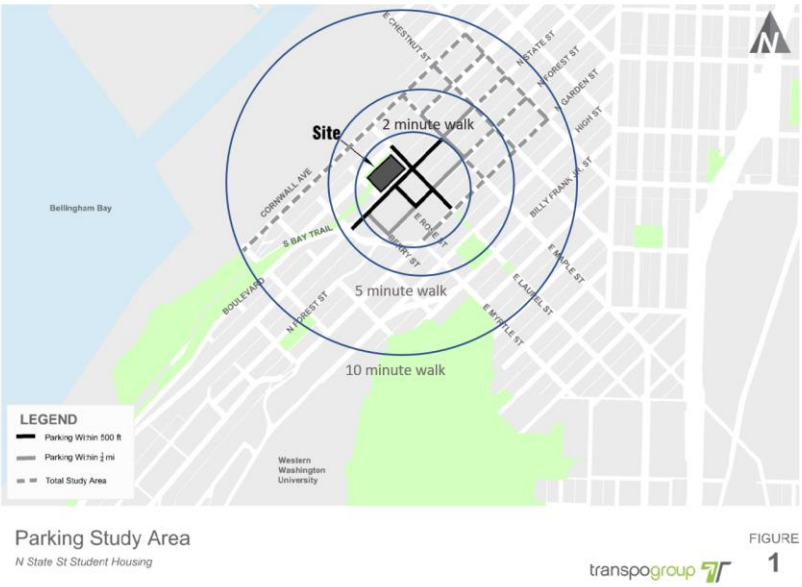
Figure 12. Bellingham Residential Parking Zones



On-street and Off-Street Parking Inventory

As part of this study, the Transpo Group was commissioned to evaluate the available on-street parking inventory and usage. During four days of observation on Tuesday April 3, Wednesday April 4, Thursday April 5, and Saturday April 14, counts were performed four times per day: in the early morning, midday, evening, and late night. There is no industry standard 'parking catchment' area, however there is a very widely used 'transit catchment' definition (i.e. how far people will walk from a transit stop to their destination and vice versa) of ¼ to ½ mile walking distance.[28] For the purposes of demarcating a supply of parking that might be impacted by spillover parking from the proposed development we used this standard transit catchment area definition. In addition, as requested by the City, a distance of 500 feet, corresponding to a two-minute walk, was also measured.

Figure 13. Parking Inventory Study Area



[28] [28] A 2012 article on transit catchment areas suggested the commonly used quarter- to half-mile distances offer good starting points for such purposes as transit-oriented development (Guerra, Cevero, and Tischler, 2012). Likewise, planning staff for the Washington, DC, Metro system used a half-mile walkshed for MetroRail stations and a quarter-mile walkshed for MetroBus stops in a walkability assessment (PlanItMetro, 2014). Meanwhile, the American Public Transportation Association described a 10-minute walkshed for transit access in a report on recommended practices for transit parking (APTA, 2015).

http://www.apta.com/resources/standards/Documents/APTA%20SUDS-UD-RP-008-15.pdf
https://planitmetro.com/2014/06/10/whats-a-walk-shed-to-transit/

Guerra, E., Cervero, R., & Tischler, D. (2012). Half-mile circle: Does it best represent transit station catchments?. *Transportation Research Record: Journal of the Transportation Research Board*, (2276), 101-109.

On-Street Parking Inventory

The on-street inventory count shows there is a variety of parking types within short walking distance of the proposed project including unrestricted all-day stalls, time-limited, and paid parking spaces. In total 873 on-street spaces were counted within a 10-minute walk of the site.

Table 5. Study Area Parking Supply

Parking Type	Parking Supply		
	2-min walk from Site	**5-min walk from Site**	**10-min walk from Site**
Unrestricted	59	147	345
2 hr time limit	98	134	154
2 hr meters	0	23	188
3 hr meters	0	0	112
8 hr meters	0	28	74
Total Stalls	***157***	***332***	***873***

Unrestricted stalls closest to the proposed project were highly utilized at 90% but within the 10-minute walk study area, only 66% of unrestricted stalls were occupied during weekdays and 48% on Saturday resulting in an average of 118 and 178 stalls available respectively.

Table 6. Summary of Average Parking Characteristics for Unrestricted Spaces

Walking Distance	Total Stalls (Unrestricted)	Average % Occupancy	Average Available Stalls
Weekday			
2-minute walk	59	90%	6
5-minute walk	147	90%	14
10-minute walk	345	66%	118
Saturday			
2-minute walk	59	86%	8
5-minute walk	147	84%	23
10-minute walk	345	48%	178

The occupancy rate of unrestricted (i.e. free, unlimited) parking was appreciably higher than for restricted stalls. This unsurprising result demonstrates the important role that pricing and time maximums play in managing parking supply. We expect that Bellingham's current management of short-term parking will continue to create turn-over and ensure ample available parking for businesses and others who rely on on-street parking for customers as the likely use by tenants of the building will be for longer term parking as indicated by our analysis of student travel patterns. The Saturday Farmer's Market is a large draw for visitors to downtown. The Saturday parking count showed a high of 79% occupancy leaving 112 available stalls.

Table 7. Summary of Average Parking Characteristics for Restricted Spaces

Walking Distance	Total Stalls (Restricted)	Average % Occupancy[1]	Average Available Stalls[1]
Weekday			
2-minute walk	98	47%	53
5-minute walk	185	54%	87
10-minute walk	528	57%	231
Saturday			
2-minute walk	98	59%	40
5-minute walk	185	64%	67
10-minute walk	528	79%	112

See Appendix 2. Parking Inventory for a complete table of parking counts.

Off-street Parking Inventory

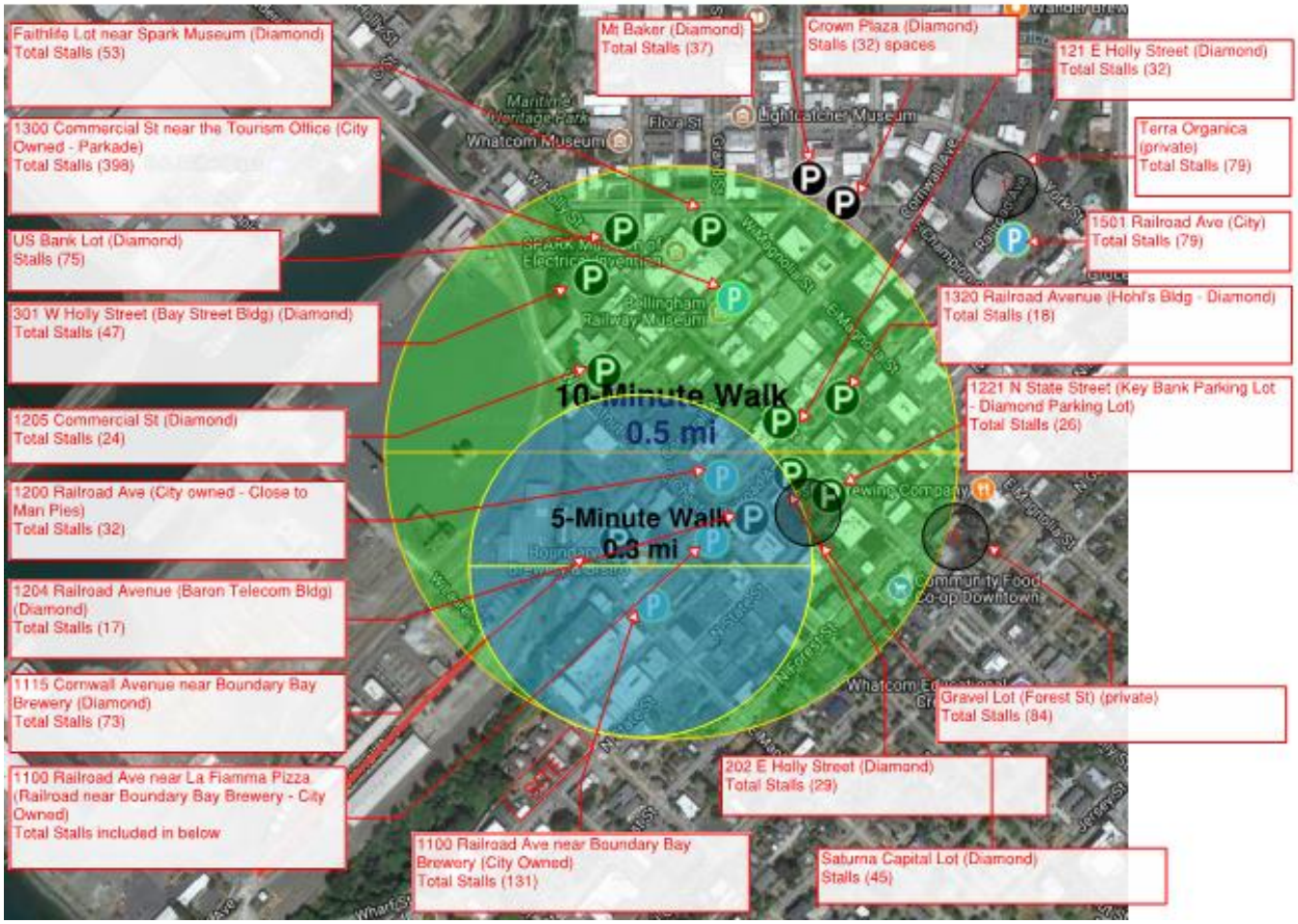
On-street parking represents only a fraction of the available parking in the vicinity of the proposed project. The study also evaluated the availability and cost of long term parking stalls for rent within a half mile of the proposed project, which corresponds a 10-minute walk. Among students who own a car, a significant percentage reported very rare of sporadic driving patterns in the WWU Student Transportation Survey (2018). This is especially true of the students who live in Sectors 1 and 2, as identified in the Student Transportation Survey (2018). It is therefore expected that, of the residents who do own a car, many will choose to rent off-site parking because it offers an attractive combination of price point, convenience appropriate to use, and availability.

The off-street paid parking inventory count returned the following results. There are 20 off-street parking lots containing 1,375 stalls within the study area, of which 713 are available for rent on a monthly basis. An interview with a representative of Diamond Parking indicated that 30 of their stalls are allocated for monthly lease. An interview with the City of Bellingham parking representative indicated that 648 are allocated for monthly lease. Further, interviews with the owners of other local private parking areas indicated 35 were available for monthly lease.

Table 8. Off-street Monthly Parking Inventory

	Total Off-Street Stalls	Available for Monthly Lease	Available for Monthly Lease as of April 2018
Diamond Managed Lots	508	30	17
City Managed Lots	648	648	92
Other Private Lots	219	35	18
Total	1,375	713	127

Figure 14. Off-street Parking Lots within Short Walk of Proposed Project



Beyond the 1,375 stalls identified above, the off-street paid parking inventory count also looked at reserved parking on the WWU campus that is available to rent by students living off campus. According to interviews with Bob Putich with WWU's Director of Campus Parking, and data provided from the WWU's Office of Sustainability research group, it concluded that 1,200 out of 2,630 stalls are available to students who live off campus for quarterly rental at prices ranging from $50/quarter to $90/quarter.

In short, there would be three tiers of off-street reserved parking available to residents of the proposed project, appropriate for different levels of convenience and price desired:

Table 9. Off-street Parking Comparison

Location	Total Stalls Available	Total Long-term Stalls Available	Reserved?	Expected Cost	Convenience	Renter Profile
Proposed North State Street Project Garage	Approximately 100	Approximately 100	Yes	$75/month	High	Residents who need their cars daily or multiple times a week.
Private Off-Street	1,375	731	Yes	$50/month	Medium/High	Residents who need their cars once or twice a week, for occasional errands and recreation
WWU Campus Off-Street (Does not include Park and Ride)	2,630	1,200	No (Permit)	$15-$30/month	Medium/Low	Residents who need their cars infrequently, primarily to travel between home and Bellingham.
Total	4,105	2,031				

A Note about the Future of Parking

More and more communities are seeking to "right size" parking supplies and management policies. Washington, DC, built upon King County's Right Size Parking Calculator by developing its own Park

Right DC calculator.[29] Neighboring the District, the City of Alexandria kicked off a multi-year effort to "right size" parking standards for new development in 2014 with an expert panel that drew upon the development, academic, and government perspectives.[30] The future of parking is managed and "right sized."

These trends in parking management may be appreciated in the context of the shifting travel trends away from automobile reliance, described above. In 2016 the Federal Reserve noted that millennials have bought cars at lower rates than previous generations. This trend is supported by a growing interest in alternatives to car ownership including traditional options like transit and biking, but also new forms like bike share, car share and ride hailing companies. New technologies and platforms such as connected autonomous vehicles are expected to disrupt the transportation sector, spurring ongoing change in daily travel as well as vehicle ownership.

In fact, these forces are already shaping new developments. The Wall Street Journal on February 2, 2018 reported that many cities are seeing developers 'future proof' their project by petitioning for parking reductions and finding ways to design stalls that are included in the building so that they can be repurposed for other uses as demand for car storage diminishes. Experts estimate the reduction in parking demand from these disruptions could range between 40% and 90%.

Notes about NXNW and The Gather

In response to City staff's request for more information about the transportation habits of residents of NXNW and The Gather, two recently-completed off-campus housing projects that cater to WWU students, we offer the following observations.

- NXNW (Walk Score of 55 out of 100) represents a low-density car-centric style of development that most progressive and growing cities, via their land use and zoning codes, are moving away from, because they promote traffic congestion, inefficient use of public infrastructure and utilities and have a poor environmental profile relative to development that enhances walkability through location and programming decisions.

- According to interviews with a NXNW leasing representative, the property has 400 stalls of surface parking, which it offers to residents for free on an unassigned and first come first served basis. The property also offers a limited number of reserved stalls for $30/month. Using parking management terminology, NXNW "**overbooks**" its parking by approximately 50%. In other words, over 600 residents are told, when they lease an apartment, that there is free parking available and, as a result, they bring cars expecting to be able to park them on site, creating "**induced demand**." This leaves up to approximately 200 residents frustrated and without parking, leading to residents parking on the streets outside the property, i.e. "**spillover**." In short, poor development patterns with residential buildings isolated from amenities plus management practices such as overbooking lead to induced demand, which results in a number of problems for the city, including spillover.

[29] http://parkrightdc.org/index.php; http://www.rightsizeparking.org/.
[30] https://www.alexandriava.gov/uploadedFiles/planning/info/Parking_Standards_Task_Force/Parking%20program%203.31.14.pdf

- The geographically isolated location of NXNW requires that the property operate a shuttle to and from the WWU campus. This clearly helps reduce vehicle trips between the property and the WWU campus, but it does not mitigate the problems of induced demand and spillover described above.

- The Gather is located in a much more convenient and walkable location relative to the WWU campus (Walk Score of 86 out of 100). However, according to information obtained from the real estate broker hired to sell the property in 2017 and interviews with current tenants, the property also "oversells" parking as well, offering unreserved parking to more residents in the building for $35/month than the actual capacity of the parking garage, which can hold 270 cars. As with NXNW, this results in many frustrated residents who feel they have paid for parking but can't find a space in the building, leading to residents parking on the streets outside the property, i.e. "**spillover**."

Evaluation of the Proposed Mitigation In lieu of Parking Reductions

The Applicant has proposed several mitigation measures intended to reduce the auto-dependence of residents of the building. This study recommends several additional measures to ensure proportionate mitigation for the reduction of parking spaces.

Nunes-Ueno Consulting has developed a conceptual model of Transportation Demand Management for corporate headquarters, college campuses and cities at large. The model posits that programs that achieve effective, sustainable reductions in demand for auto travel (and related demand for car storage) must apply credible pressure on four fronts simultaneously: Culture, Cost, Convenience (time), and the Built Environment (CCCB model.) We use this model here to evaluate the total impact of the proposed mitigation and recommend additional actions where we find gaps in the proposed scheme.

The assumption underlying the CCCB model is that Transportation Demand Management is a multiplicative function. In other words, if any one of these factors Culture (including property management, rules and enforcement), Cost, Convenience or the Built Environment produces zero mode shift then the entire result will be potentially zero.

CULTURE X COST X CONVENIENCE X BUILT ENVIRONMENT = Sustained Transportation Demand Management

Recommended Mitigation Element	TDM FACTOR + [IMPACT assuming proposed enhancements]	Expected Outcome	Potential Enhancements Applicant and City Should Consider
Require property management to use a residential lease template that contractually requires project residents who do not rent a designated space in the building garage (and their lease guarantors) to legally represent that either (a) the resident does not have a car or (b) that they rent an off-street parking space and (c) will not use unrestricted on-street parking within the City for long-term parking.	Culture [HIGH]	Significantly reduce the likelihood of project residents using unrestricted parking in adjacent neighborhoods for parking (i.e. “spillover”)	
Unbundle rent and parking.	Cost + Culture [High]	Eliminate “induced demand”.	
Employ dynamic pricing for building parking, setting the building’s parking rate to calibrate demand to the number of spaces provided, i.e. a significant waiting list for parking is a sign that the price is too low.	Cost + Culture [High]	Eliminate “induced demand”.	
Do not allow property manager to “oversell” parking, a practice some buildings employ in which they rent many more “unreserved” parking	Management + Culture [HIGH]	Eliminate “induced demand”.	

Recommended Mitigation Element	TDM FACTOR + [IMPACT assuming proposed enhancements]	Expected Outcome	Potential Enhancements Applicant and City Should Consider
passes than there are actual parking spaces. For example, a property manager of a building with 10 stalls rents 16 unreserved parking passes for $35/month instead of 10 “reserved” stalls for $50/month which (in this hypothetical example) results in 12% more income but results in severely mismanaged expectations. This occurs at a number of Bellingham student focused properties, resulting in many more residents thinking they have parking than there are actual parking spaces, inducing them to bring cars which they then have to park on the street.			
Master lease reserved off-site parking from one or more of the 20+ of private lots containing approximately 1,375 total stalls (713 available for monthly rental) within an approximately ½ mile vicinity of the property (i.e. less than the distance students will be walking from the property to the WWU campus).	Convenience + Cost [HIGH]	Provide a lower cost option for those residents who don’t value parking convenience sufficiently to rent a reserved space in the project’s garage (likely residents who drive less frequently) but who still want parking.	

Recommended Mitigation Element	TDM FACTOR + [IMPACT assuming proposed enhancements]	Expected Outcome	Potential Enhancements Applicant and City Should Consider
Work with WWU parking program to advertise availability of the more than 1,200 stalls of parking located on campus that are available for rent by students who live off-campus. These rent for as little as $15/month.	Convenience + Cost [HIGH]	Provide an option for students who don't rent a space in the building or in a reserved master leased off-site space.	
New Resident Orientation and Classes New residents receive and in-person orientation on transportation options available in the building.	Culture [HIGH]	Ensure that new residents receive needed information on available options; set culture of sustainable transportation.	Create a comprehensive packet of information about transportation options available in the building and distribute at new tenant orientation.
Community Transportation Reps Building's community assistants to provide support for transportation options.	Culture [HIGH]	Provide a resident expert on bicycle, walking, and transit options.	Train community assistants through WWU's Sustainability Representative program to ensure high-quality service delivery and updated content with the latest campus developments.
Building Ride Share Board Facilitate ride sharing.	Culture [HIGH]	The 2018 WWU Transportation Survey asked what would make it easier to live without a car. The highest	Consider a physical and virtual rideshare board. Having a dedicated—and managed—space in a common area where

Recommended Mitigation Element	TDM FACTOR + [IMPACT assuming proposed enhancements]	Expected Outcome	Potential Enhancements Applicant and City Should Consider
		response was “Easier options to get home.”	drivers can advertise rides is useful. Providing an online ridematching platform for the building in addition is also recommended.
In-Building Car Share Host car sharing vehicle for tenant and community use.	Convenience [HIGH]	Car sharing has been shown to reduce car ownership.[31] Since car use is sporadic providing car share vehicles will likely allow many residents to leave cars at home.	Outfit shared cars with ski and bike racks and Discover Passes for parking at State Parks. Consider peer-to-peer alternatives to Zipcar such as Turo or Getaround. Incentivize residents to place cars in sharing platform by providing discounted parking.
Provide a bus pass for any project resident that does not already have	Convenience + Cost [MEDIUM]		

[31] A 2005 Transit Cooperative Research Program report, “Car-Sharing: Where and How It Succeeds,” estimated that “at least five private vehicles are replaced by each shared car” and described how “reduced vehicle ownership can lead to increased parking availability and less need for new parking” (TCRP 2005). A 2010 study of car sharing impacts on North American household vehicle ownership estimated that each shared vehicle equated to 9-13 vehicles removed from the road (Martin, Shaheen, and Lidicker, 2010). A 2016 study of car2go impacts in five North American cities estimated that each car2go vehicle removed 7-11 vehicles from the road (Martin and Shaheen, 2016).

Recommended Mitigation Element	TDM FACTOR + [IMPACT assuming proposed enhancements]	Expected Outcome	Potential Enhancements Applicant and City Should Consider
one (i.e. WWU students are given a bus pass).			
Improve pedestrian crossing of North State Street at Laurel Street	Built Environment [HIGH]	Create safer and more attractive crossing of a busy arterial at an intersection that will most likely be used by residents of the building everyday.	
Enhanced Bike Parking Provide approximately 50% more bike storage than code required.	Built Environment [HIGH]	Ensure safe storage and easy access for everyday use of bicycles as transportation.	Ensure that access to bicycle storage is intuitive and time efficient. Consider automated doors operated by RFID cards. Include a mix of vertical racks and horizontal stands for those with heavier bikes. Provide some designated cargo bike parking. These bikes are larger and often cannot be locked in standard bike racks. Outfit bicycle storage

Recommended Mitigation Element	TDM FACTOR + [IMPACT assuming proposed enhancements]	Expected Outcome	Potential Enhancements Applicant and City Should Consider
			areas with electric outlets to charge electric bicycles. Consider including hooks for bicycles in each apartment in addition to garage bicycle parking for more expensive bicycles.
On-Site Bike Shop In-building bicycle repair shop providing workshops and classes to residents.	Convenience + Culture [MEDIUM]	Provide support to keep bicycles in good running order.	Provide a financial subsidy for residents to receive discounted bike maintenance and gear.
Transit Screens Lobby screen showing next departure for transit lines nearby.	Convenience [MEDIUM]	Give residents real-time transit information to reduce waiting time and encourage use of transit.	Consider also installing transit screen that faces outward to transit stop so riders waiting for bus can have arrival information.
Bicycle Wash Station Facility for washing muddy or oily bicycles.	Built Environment/Culture [LOW]	Provide comfortable area for bike washing. This will likely appeal to mountain bikers more than commuters.	N/A
Enhanced Transit Shelter	Built Environment	Improve waiting	Install leaning bars

Recommended Mitigation Element	TDM FACTOR + [IMPACT assuming proposed enhancements]	Expected Outcome	Potential Enhancements Applicant and City Should Consider
Provide covered area adjacent to transit stop on North State Street	[Medium]	experience for transit patrons.	against building.
Walk Wall Lobby map with walking routes to campus.	Convenience [MEDIUM]	Provide directions to various walking routes to campus.	Include estimated time of walking for each route. Include exercise information such as calories burned etc.

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Appendix 1. Transportation Impact Analysis

Appendix 2. Parking Inventory Summary

Appendix 3. Student Walking Route Evaluation