

Learning From Peers: Infill & Vehicle Miles Traveled (VMT) In Practice

Lessons learned from **Bellingham** and **Boulder**—
and what it could mean for Bend



**A PLAN FOR TOMORROW,
CRAFTED TODAY.**

Oregon's climate rules ask Bend to do two hard things – grow inward, and drive less

These case studies document two peer cities that have made meaningful progress addressing two state pressures: (1) Realizing Infill and (2) Mode Shift and Vehicle Miles Traveled (VMT) reductions

Infill Case Study: Bellingham

Climate Friendly and Equitable Communities rules prioritizes infill and Climate-Friendly Areas.

Bellingham channeled growth into compact, by-right districts – a notable peer for the land-use side.

grow inward

Mode Shift Case Study: Boulder

Oregon requires Bend to plan for reduced per-capita Vehicle Miles Traveled.

Boulder set a numeric target and built a funded system to hit it – the clearest peer for mode shift and VMT reductions.

drive less

BEND MADE

Gratitude for our Expert Interviews

Bellingham: Infill and Housing Focus

1

- **Tara Sundin**, Community & Economic Development Division Manager
- **Blake Lyon**, Planning & Community Development Director
- **Kurt Nabbefed**, Development Services Division Manager

2

- **Tim Holman**, Public Works Director
- **Dylan Casper**, Transportation Planner for Public Works

Boulder: Mode Shift and VMT Focus

3

- **Chris Hagelin**, Principal Planner, Transportation & Mobility Department
- **Allison Moore Farrell**, Senior Transportation Planner
- **Jean Sanson**, Transportation Policy Manager
- **Gerrit Slatter**, Senior Engineering Manager

In addition to interviews, these case studies were supplemented with research and analysis. Sources cited on relevant slides.

Glossary of Terms

- **Accessory Dwelling Unit (ADU)** — A smaller secondary housing unit on the same lot as a house — a backyard cottage, converted garage, or basement apartment.
- **By-right** — Development automatically allowed under the zoning code, with no special hearing or discretionary approval needed.
- **Climate-Friendly Areas (CFAs)**— Oregon-mandated mixed-use centers on transit-served corridors where residents can meet most daily needs without a car; cities must zone enough land in CFAs to hold at least 30% of future housing need. (OAR 660-012-0315)
- **Density bonus** — Lets a developer build more units than the zone normally allows, in exchange for meeting certain criteria, like a number or percentage of affordable units.
- **Design Review** — A public/staff process evaluating a proposed building's design against adopted standards before approval.
- **EcoPass** — Boulder's transit-pass program.
- **Mode shift** — change towards using more multi-modal transportation options (transit, walk, biking, etc) for trips.
- **Multi-Family Tax Exemption (MFTE)** — A 12- or 20-year property-tax exemption for new multi-family (or multi-unit) development, in exchange for meeting program conditions.
- **Middle Housing** — Housing types fall between a single detached house and a multi-units buildings: duplexes, triplexes, fourplexes, townhomes, cottage clusters.
- **Real Estate Excise Tax (REET)** — A Washington State tax on real-property sales that can be used by cities to fund capital projects.
- **System Development Charges (SDC)**— One-time fee on new development to pay for infrastructure needed to accommodate growth.
- **Vehicle Miles Travelled (VMT)** - a measurement used to track progress towards reducing driving and meeting climate emissions reduction goals.
- **Transportation Demand Management (TDM)**— Strategies aimed at reducing how much people drive, especially at peak times.

Comparable in size –but **very different in character**

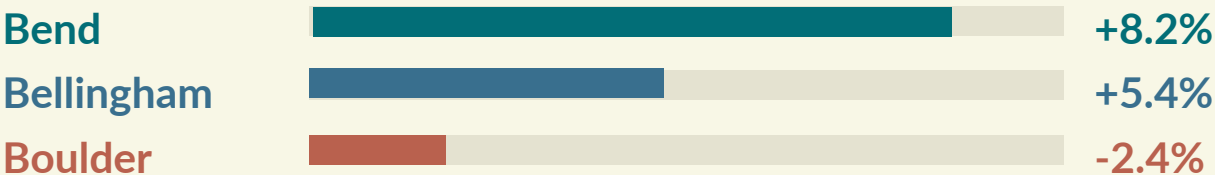
TOTAL POPULATION



27%

Bend is 27% less dense than Boulder

POPULATION GROWTH SINCE 2020



\$96.4k

Bend's median household income — highest of the three

POPULATION DENSITY (PERSONS / SQ MI)



8.8%

Bend's poverty rate — lowest of the three

Source: US Census QuickFacts PEP, 2025. Census Decennial 2020. Legal City Limits (as of August 2026).

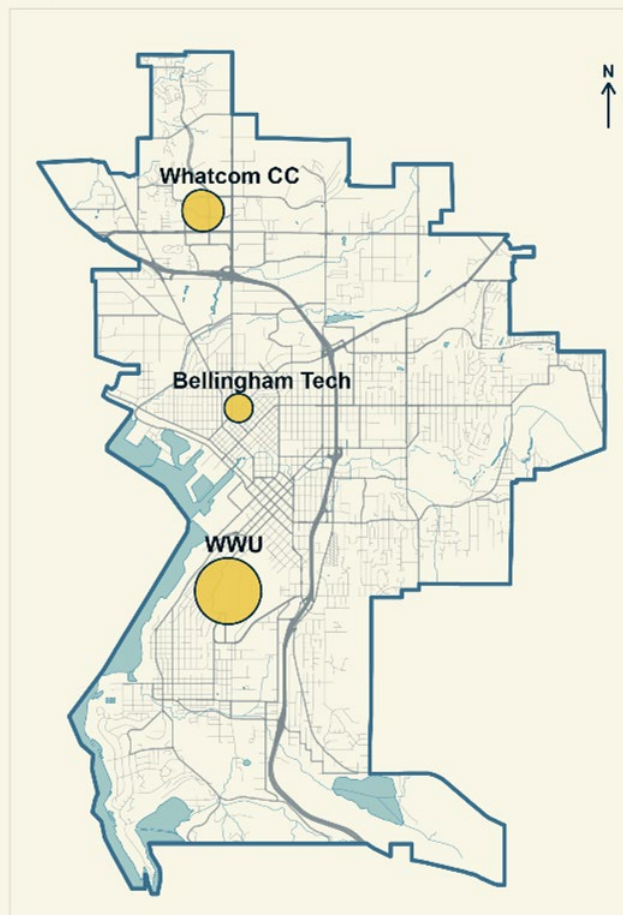


Bend is the largest in size with the fewest students

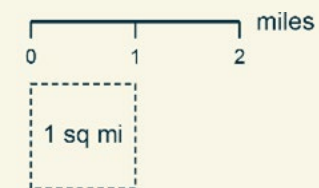
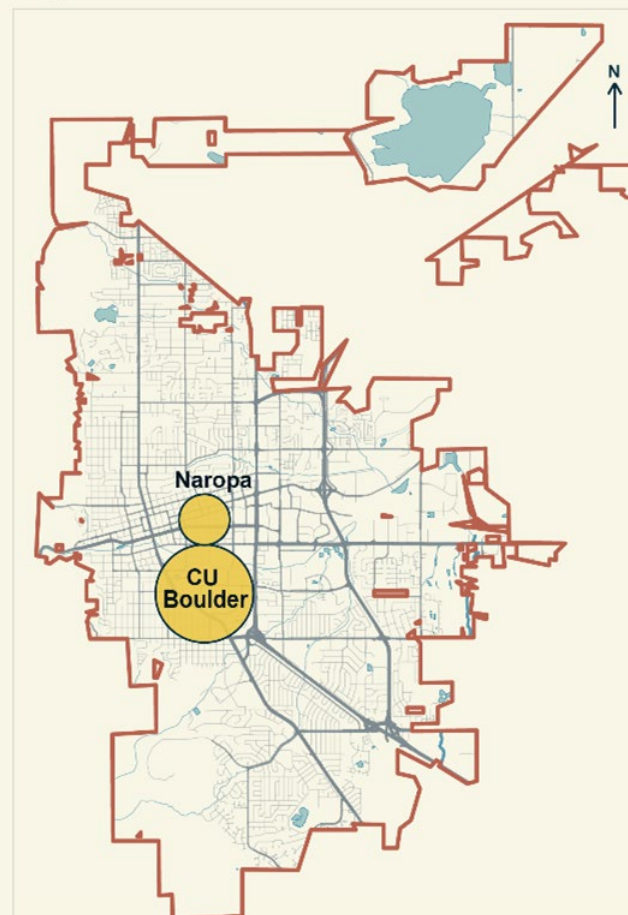
Bend, OR
City Area: 36.0 sq mi



Bellingham, WA
City Area: 27.7 sq mi

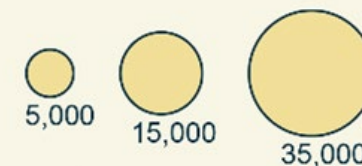


Boulder, CO
City Area: 28.0 sq mi



- Primary road
- Arterial
- Local street
- City limit
- River / stream
- Water body / bay

College Enrollment (dot area)



$r = 0.143\sqrt{(\text{enrollment})}$, one shared constant

Sources: © OpenStreetMap contributors (ODbL); Boundaries are legal city limits (U.S. Census Bureau TIGER/Line 2019; and annexation updates as of August 2026). Campus enrollments approximate, institution figures.

BEND MADE

Bend's housing is more ownership and single-family

Bend sits between Bellingham and Boulder in affordability, but leans far more toward single-family ownership.

MEDIAN HOME VALUE



Bend's recent typical home value is \$738,00 (Zillow, May 2026)

MEDIAN GROSS RENT



HOMEOWNERSHIP RATE

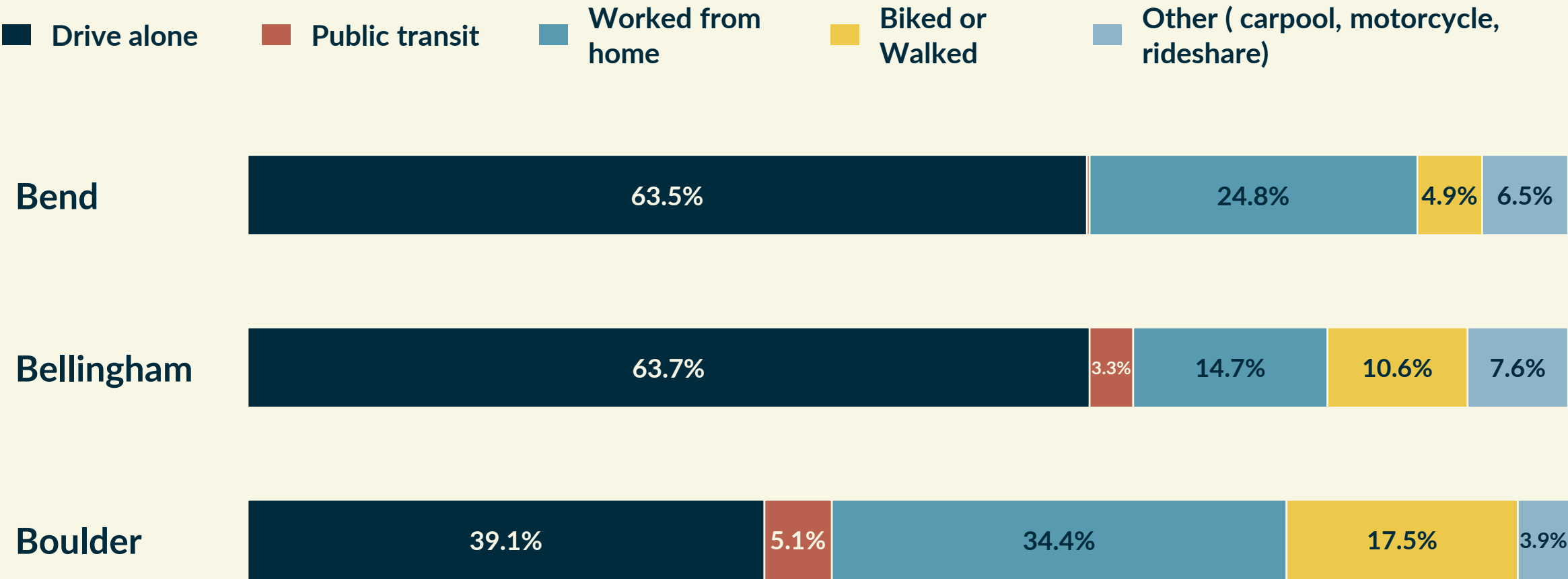


DETACHED SINGLE-FAMILY



Source: U.S. Census Bureau, ACS 2024 5-year (2020–24), place level — home value B25077, gross rent B25064, homeownership B25003, detached single-family B25024.

Bend is highly car-dependent

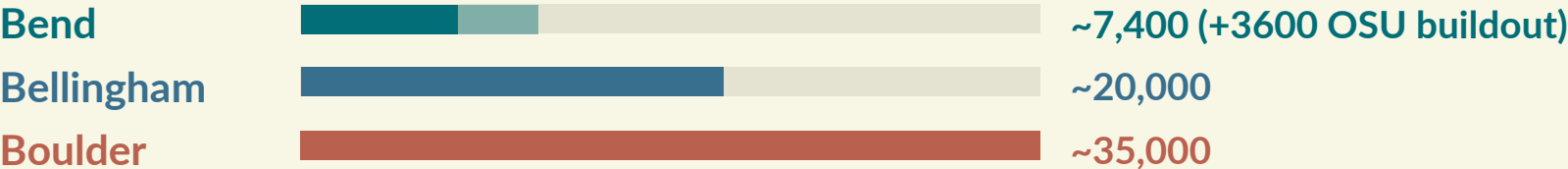


Source: ACS 2024 5-yr (B08301) Means of Transportation to Work



Bend has lowest student enrollment

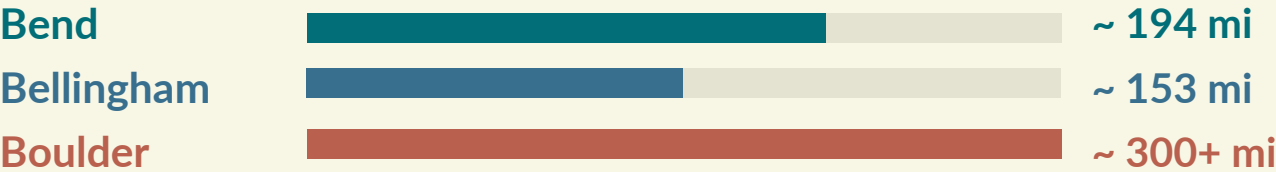
UNIVERSITY ENROLLMENT



11,000

Bend's forecasted student population — half of Bellingham's and one third of Boulder's enrollment.

MILES OF PED/BIKE NETWORK (definitions vary — see note)



1.5X

Boulder's bike/ped facilities compared to Bend's

80

Number of bike and pedestrian underpasses in Boulder

Ped/Bike Network: NOT directly comparable — each city counts differently.

- Bend 111+ mi = striped, separated & buffered bike lanes ([City of Bend news release, April 2024](#)), 83.76 BPRD Trails that allow bikes without restrictions (BRPD Staff, September 2026)
- Bellingham ~102 mi bike facilities + 51 miles of bicycle-friendly multi-use trails, August 13, 2026 Bellingham Transportation Planner interview)
- Boulder 300+ mi = all bikeway types including bike lanes, multi-use paths, designated bike routes & Neighborhood GreenStreets (City of Boulder boulder.colorado.gov/services/bike).



Bend's transit system reaches fewest places, less frequently

Similar city sizes, vastly different transit systems.

2

frequent
routes

Bend has 11 routes with **15-min service** only on Routes 1 & 4.



cascades east
transit

4

frequent
routes

Bellingham has 30 fixed routes with **15-min frequent lines** on four corridors. Western Washington University makes up ~38% boardings.



Whatcom Transit
Authority

5

frequent
routes

Boulder RTD covers most of the city at **10-15 minute** peak frequencies including service to Longmont. Regional Service to Denver (Flatiron Flyer) adds a high-ridership regional bus rapid transit connection.

Core routes run every **10 minutes** during peak hours on weekdays, 15 minutes on evenings; 30 minutes late night; 15-minute on Saturdays.



BOULDER CHAMBER
**BOULDER
TOGETHER**

Regional Transportation
District and Community
Transit Network

Source: Bend Cascade East Transit: cascadeseasttransit.com/schedules • Bellingham Whatcom Transit Authority: ridewta.com/schedules-and-maps • Boulder Community Transit Network/Regional Transit District: app.rtd-denver.com/schedules • HOP: bouldercolorado.gov/services/hop-bus • Flatiron Flyer: rtd-denver.com/routes-services/other-services/flatiron-flyer

BEND MADE



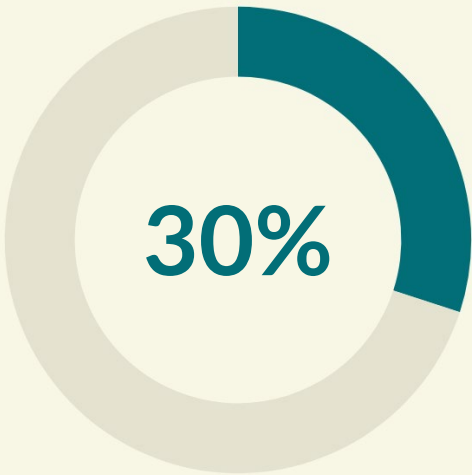
Bellingham Urban Villages

The details behind Bellingham's infill successes and layered infill incentive toolbox



Image: Artist rendering of 35th Street (Samish Way Urban Village Plan 2019)

Bend's Climate-Friendly Areas are Urban Villages — except Bend is required to build them



of citywide housing need must be zoned into Climate-Friendly Areas (CFAs)

Source: OAR 660-012-0315

- Climate Friendly Areas (CFAs) are Oregon-mandated, required mixed-use centers on transit-served corridors — where residents can meet most of their daily needs without a car.
- Oregon cities must zone enough land in CFAs to accommodate at least 30% of their future housing needs.
- Bellingham chose the Urban Village strategy; Bend is mandated to do it.
- Bellingham helps demonstrate how Bend can ensure that Bend's housing target (30% housing capacity requirement) is feasible inside CFAs.

Facing the same “grow-in-not-out” pressure, Bellingham made infill its growth engine

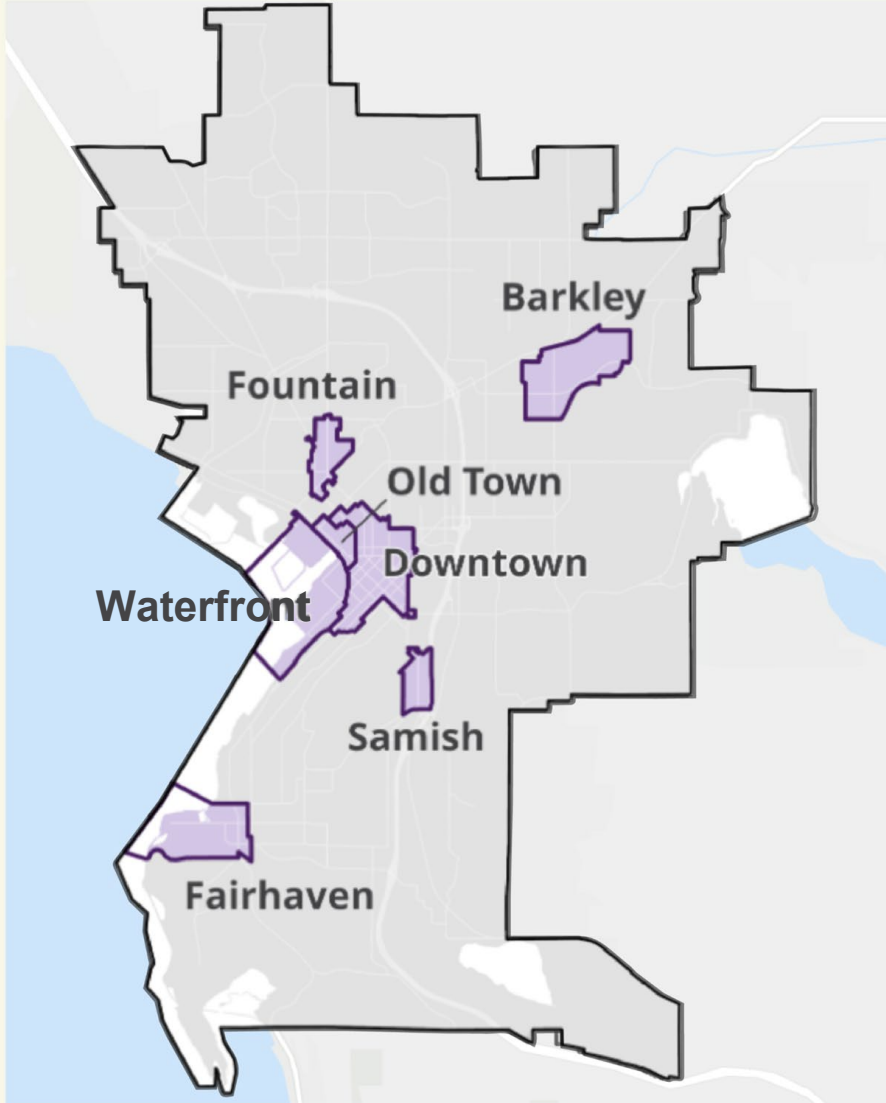
1 Urban Villages

- 7 designated, compact, mixed-use areas to serve as community nodes near high transit corridors.
- Higher density allowed by right, backed by targeted infrastructure investment.

2 Infill Toolkit

- **2009:** Toolkit adopted in Urban Villages and Multi-Family Zones, making small-lot infill legal and feasible.
- **2021:** Toolkit updated to increase Accessory-Dwelling Unit height and allow two per lot.
- **2024-2025:** Executive order and interim ordinance expands toolkit to all residential zones citywide. Draft Comprehensive Plan proposes permanently embedding toolkit.

Bellingham's Urban Villages: What are they?



Urban Villages are defined in the 2016 comprehensive plan:

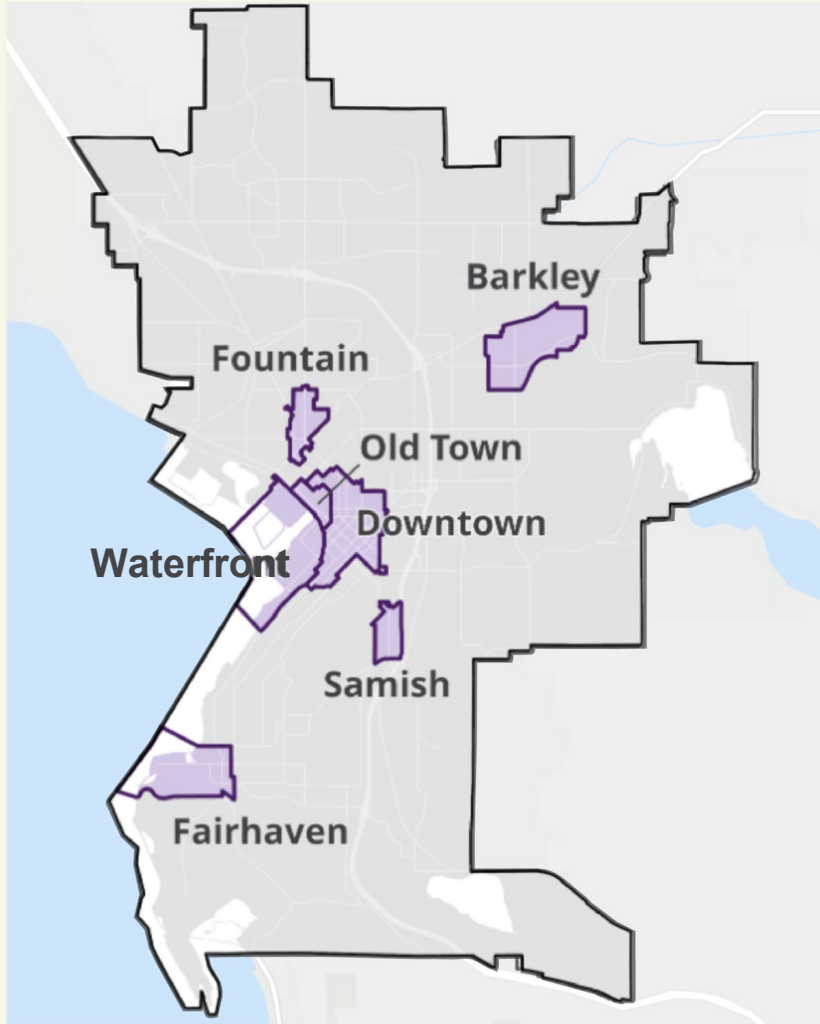
- Contain a mix of commercial, residential, and service uses
- Provide amenities and necessities within walking distance
- Designed for pedestrians, bikes, transit, and automobile
- Facilitate strong community connections and interaction by serving as a neighborhood focal point
- Provide active public spaces and promotes sustainability and quality design.

Bellingham's Urban Village Program has been in place for 20 years

- **2006:** 3 sites designated when Urban Village concept was formalized in the 2006 Comprehensive Plan (Downtown, Fairhaven, Barkley)
- **2008-2013:** Old Town, Samish Way, Fountain District, and Waterfront Designated as Urban Villages

Bellingham's Urban Villages: How they sited them

Be opportunistic and realistic about what you can execute. Each village requires careful planning & investment.



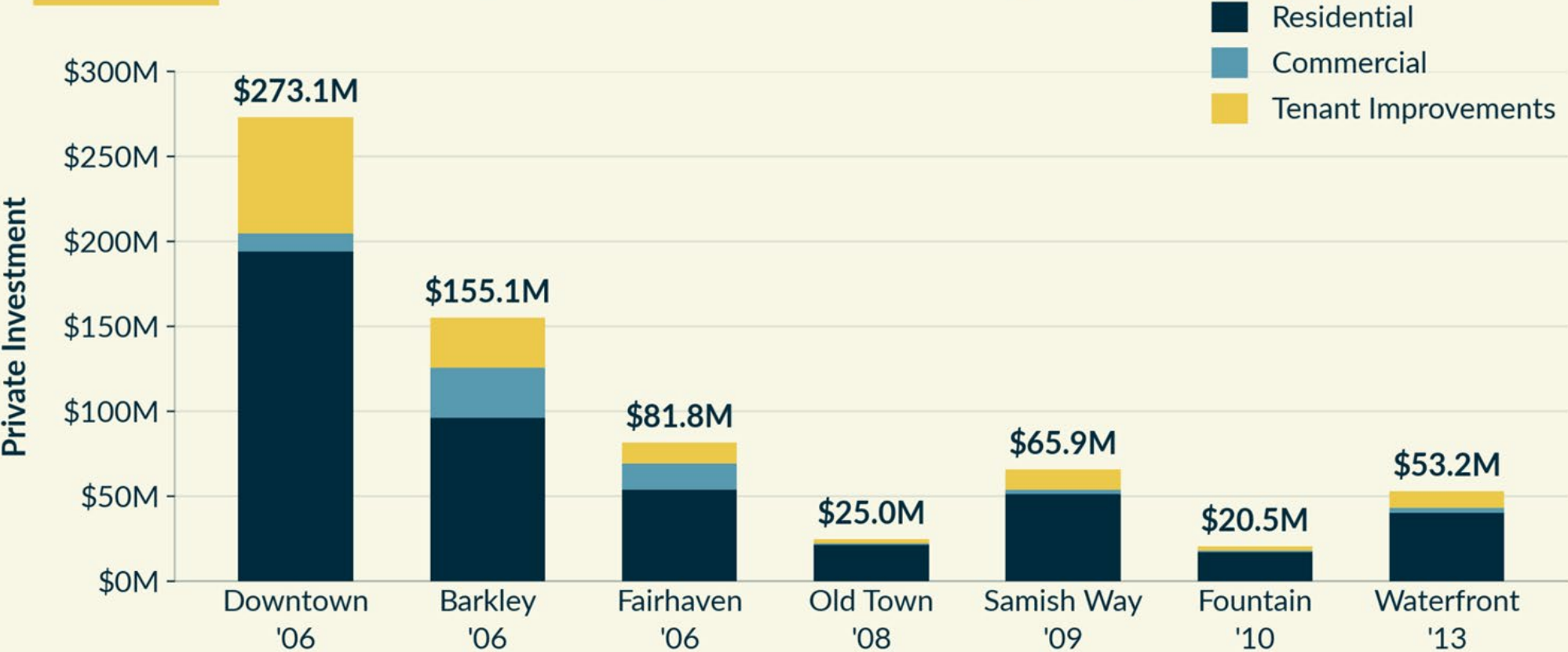
- **Most villages were already in motion.** Several of the villages (Downtown, Fairhaven) had clear momentum before the 2006 comprehensive plan formalized the Urban Village concept.
- **Timing and political context shaped village selection.** Community concerns around density led to regulatory complexity. The city is now working to simplify regulations across Urban Villages.
- **Fountain and Samish were selected based on community interest.** Neighborhood willingness to accept density was limited in 2006; the City prioritized neighborhoods that had interest.
- **Siting criteria: underutilized land, transit access, and feasibility/timeline of change** were prioritized. Car dealerships were an explicit counterexample — if the use isn't likely to turn over, don't designate it.
- **The city started with ~15 potential sites across three tiers and designated 7.** Implementation capacity, not site quality, determined what moved forward.

BEND MADE

Bellingham's Urban Villages: How they are doing

Private Investment by Urban Village

Residential, Commercial & Tenant Improvements | labels show benchmark (designation) year

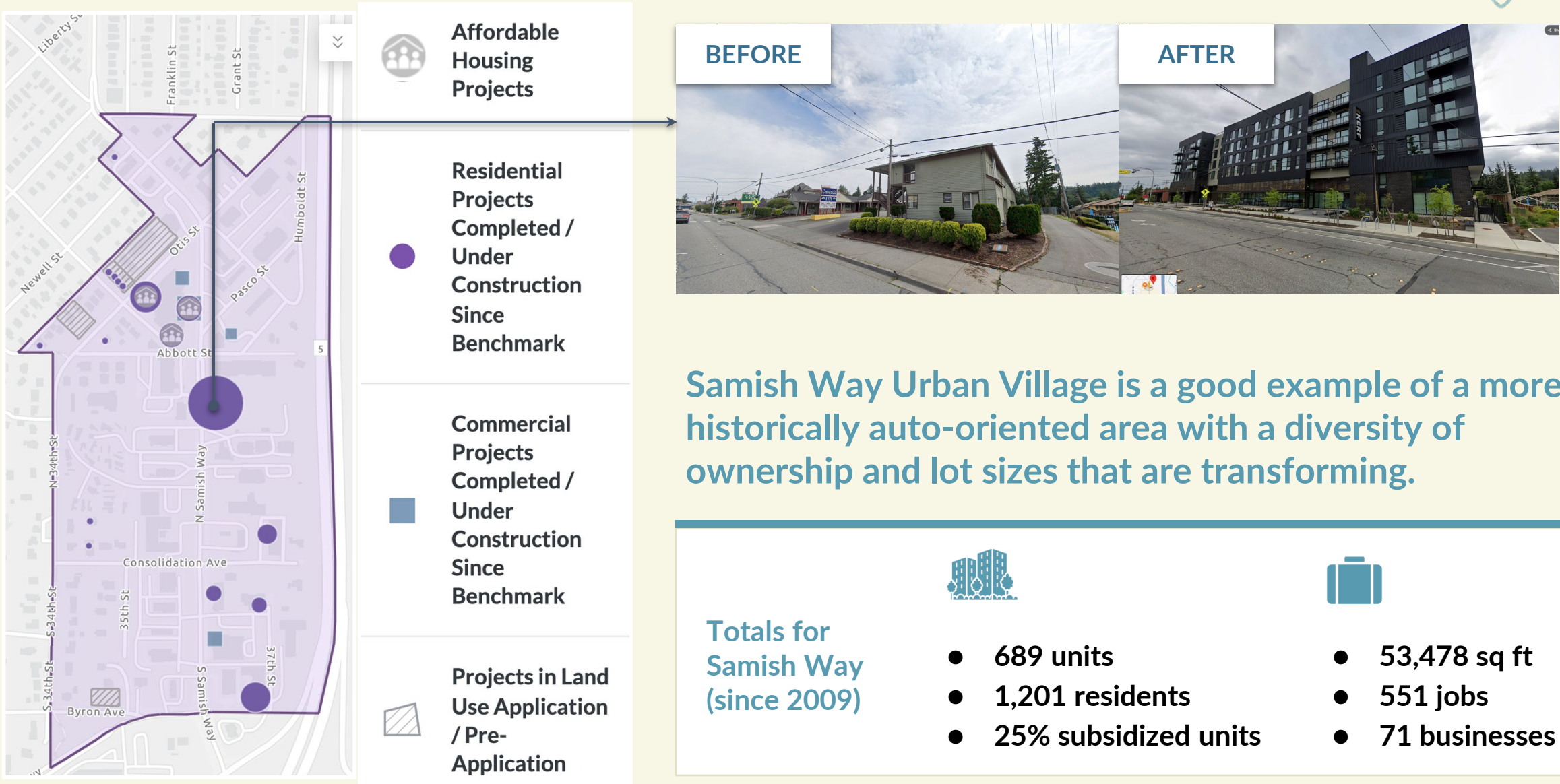


Downtown (an established area) has seen the most investment since designation.

Barkley Village (single-site ownership) has seen the next most total investment.

BEND MADE

Bellingham's Urban Villages: Samish Way



Samish Way Urban Village is a good example of a more historically auto-oriented area with a diversity of ownership and lot sizes that are transforming.

Totals for Samish Way (since 2009)



- 689 units
- 1,201 residents
- 25% subsidized units



- 53,478 sq ft
- 551 jobs
- 71 businesses

Bellingham's Urban Villages: Making a Place

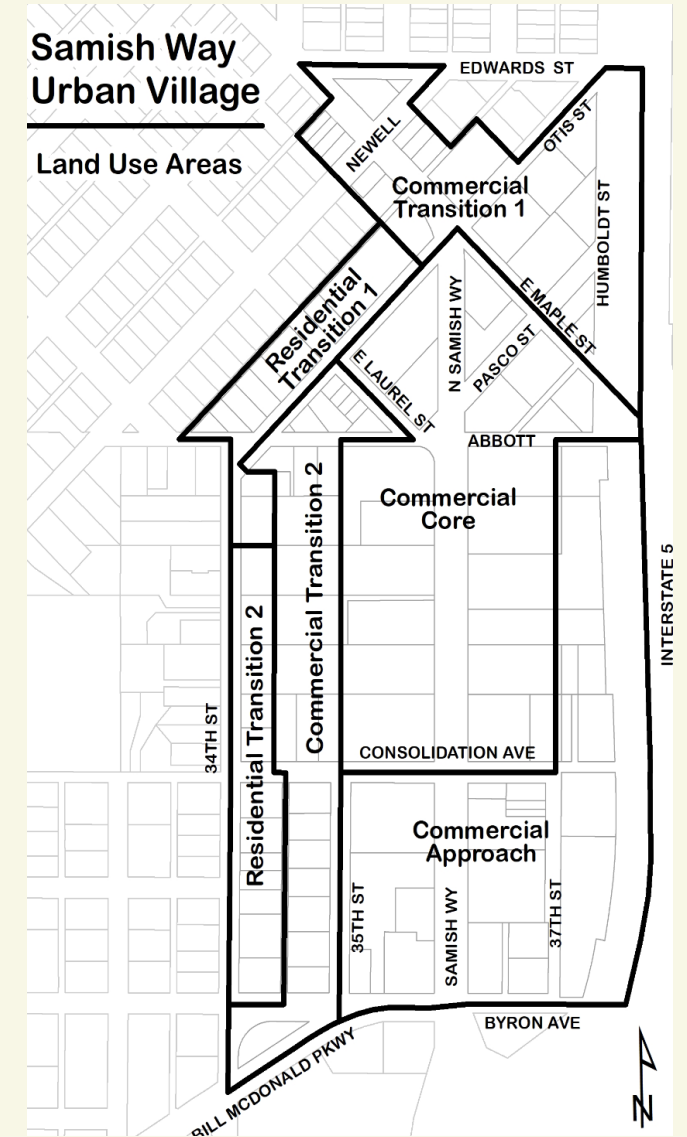


Bellingham Portal Container Village - Waterfront District

Key takeaway

“Be opportunistic and realistic about what you can execute.”

- Bellingham's **interim activation projects** (beer gardens, container villages, bicycle pump tracks) help **activate districts early on**.
- Bellingham has used **Design Review & tailored development standards** (transition zones, etc) for each village, **which they don't necessarily recommend**. They are now looking at simplifying regulations across their districts.



Not one tool – a menu of incentives of where, what, and how cheap

WHERE

Where does density go?

- 7 Urban Villages (by-right density on transit corridors)
- Targeted infrastructure

WHAT

What is allowed?

- Multi-family
- Mixed-use
- Middle Housing types (like duplexes and triplexes)
- Accessory Dwelling Units

HOW

How to make financially feasible?

- Multi-Family Tax Exemption (MFTE) 12/20-yr tax exemption
- 50% System Development Charges (SDC) & permit-fee cut
- 50% density bonus for $\geq 51\%$ affordable

HOW

How to remove friction?

Eliminate the citywide parking-minimum.

BEND MADE

The infill strategy is producing *real units* — at a meaningful share of growth

Urban Villages

5,172

units in Urban Villages

~30%

of new housing built since 2006
citywide landed in the 7 Urban Villages

Infill Toolkit

1,916 units

built citywide across 41 MFTE
projects (Aug 2025)

450 units

built since the adoption of toolkit

500+ units

permitted in 2024

300+ units

in the pipeline (in construction, or
permitted)

BEND MADE

The unglamorous part — predictability and a distributed funding base

Predictability for builders

Development agreements
bundling infrastructure
commitments, expedited
permitting, and code certainty.

Impact fees as a steering tool

Reduced for Urban Village
projects; build-vs-pay options
for parks.

A layered public funding base

No single source carries it — a
stack of revenue tools sits
behind the predictability.

FUNDED BY

- Real Estate Excise Tax
- Impact fees
- Grants
- Local Housing Levy
- Affordable-housing sales tax

BEND MADE

Boulder Mode Shift

Transformational moves
that the City of Boulder
made to get people to
drive less



Image from [CommutingSolutions.org](https://www.commutingsolutions.org/)

Boulder set aggressive targets to **move people differently**

With ~43,000 acres of protected open space intended to reduce sprawl and a goal to reduce smog; Boulder funded and built a system to reduce vehicle-miles-traveled per capita.

2030 Transportation Master Plan Goals



–20%

Vehicle-Miles-Traveled
per capita;
80% of trips non-auto



–50%

transportation
greenhouse-gas
emissions



80%

of residents within
15-minute
neighborhoods



0

Vision Zero target —
serious crashes

Sources: [Transportation Master Plan | City of Boulder](#), [Transportation Report on Progress | City of Boulder](#), [Boulder Releases 2025 Transportation Report on Progress](#)

BEND MADE

They **funded** the alternative to driving – Boulder's funded transportation network

Boulder's mode shift relies on strategic partnerships and robust transportation programs

EcoPass

Deeply subsidized transit passes bought by employers, universities, districts, and neighborhoods – the ridership backbone.

Infrastructure development

300+ mile network, 96 miles of bike lanes, 84 miles of multi-use paths, 80 pedestrian & bicycle undercrossings, 50 miles of “GreenStreets”.

Shared mobility

BCycle e-bike share citywide and on University of Colorado Boulder campus.

Transportation Demand Management (TDM) access districts

Boulder Junction caps parking & Single Occupancy Vehicle mode share at 45%; district taxes fund the EcoPass.

Parking pricing

Demand-based pricing for downtown parking that funds transit.

BEND MADE

Mode split happened over decades – not overnight

In 1989 Boulder began investing in bike/pedestrian infrastructure & Vehicle-Miles-Traveled reduction with the first Transportation Master Plan, but efforts to reduce Vehicle-Miles-Traveled date back to 1967 when the City passed a sales tax for transportation.

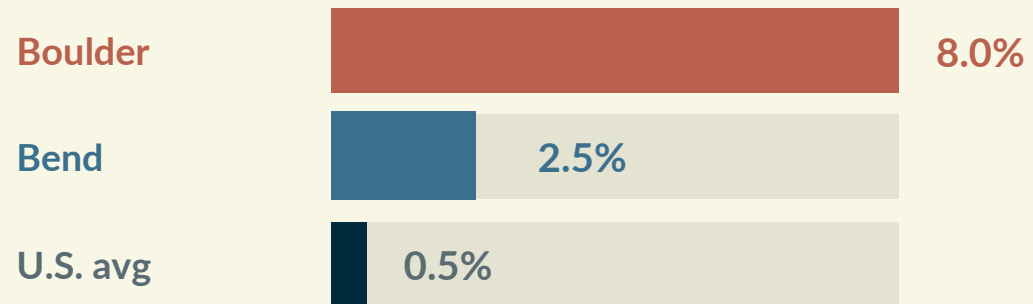
- Boulder began monitoring Vehicle-Miles-Traveled in the 1990s.
- Boulder had a 9% reduction in Single- Occupancy-Vehicle Trips from 1990-2023⁽¹⁾
- Despite Boulder’s robust off-street bicycle & pedestrian network, recent capital investments are focused on arterials and roadways to meet Vision Zero safety goals.

“ Over 40% of our riders said bike share replaced what would have been a single-occupancy car trip.

— Kevin Crouse, Boulder BCycle GM



BICYCLE COMMUTE SHARE IS 16 TIMES THE U.S. AVG⁽²⁾



Sources: (1) City of Boulder 2025 Transportation Report
(2) ACS 2024 5-Year Estimates

BEND MADE

Mode Shift Tools & Partners

- The EcoPass transit subsidy is anchored in student ridership, but **neighborhoods and employers also play a key role.**
- Neighborhood transit pass programs can extend subsidized ridership and housing the Transportation Demand Management (TDM) program within the Chamber helps reach employers directly.
- Transportation mode shift is treated as infrastructure with an operating budget.

Boulder's population of out of town commuters are a key barrier to VMT reduction:

"A person who works in Boulder but lives outside Boulder, their 1-way work trip distance is longer than a Boulder resident's travel all day." - Chris Hagelin

University of Colorado Boulder with roughly 5 times Bend's combined college base (Central Oregon Community College and Oregon State University-Cascades) sponsors an EcoPass-style subsidy to support transit.



ANCHOR UNIVERSITY ENROLLMENT

CU Boulder

~35,000

Bend colleges

~7,400 (+3600
OSU buildout)

BEND MADE



Lessons for Bend

Building more, driving less, funding both



image from City of Bend

The playbook transfers **even when the tools don't**

INFILL

Direct density to centers

Channel growth to designated, transit-served nodes — Bend's planned Climate Friendly Areas.

INFILL

Stack incentives so it is financially feasible

No single lever will achieve desired outcomes — make density legal, feasible, cheaper, and unconstrained, together.

VEHICLE MILES TRAVELED

Fund alternatives to driving

Treat non-auto access as infrastructure with an operating budget and strategic partnerships.

BEND MADE

Infill Lessons for Bend

Site Climate Friendly Areas (CFAs) selectively

Focus energy on a few areas rather than many.

Community sentiment, site ownership, and existing energy and urban form all shape where transformation succeeds.

Auto-oriented transformation is hard

Converting auto-oriented areas takes real effort.

Bend may need more examples of how peer communities have approached this shift.

By-right incentives move investment

Multi-Family Tax Exemptions (MFTE), System Development Charge (SDC) reductions, and permit fee reductions (available only within Urban Villages) were critical to directing investment there.

Bend Infill Lessons — applying it, and what's still unknown

HOW THIS RELATES TO THE PROJECT

- Where and how to select and site Climate Friendly Areas
- How to realize housing goals in Climate Friendly Areas
- Bend's Land Use Efficiency Measures (where density is directed)
- Housing Production Strategy

GAPS IN KNOWLEDGE

- Examples of infill transformation in auto-oriented districts

Mode Shift Lessons for Bend

Boulder & Bellingham's mode shift is anchored by transit and university enrollment — Bend won't reach the same enrollment levels, but the lessons still apply.

1. Transit passes & Transportation Demand Management (TDM) work

Boulder's neighborhood/employer transit pass programs paired with TDM strategies are successful.

2. Bend's transit gap

Bend has the lowest transit ridership of the three peer cities — funding needs deserve added attention.

3. Funding sources vary

Bellingham and Boulder use a variety of creative transportation fundings tools to fund mode shift investments.

4. Affordability matters

Boulder's significant commuter population poses real challenges to meeting VMT goals.

5. Change takes decades

Boulder's mode shift didn't happen overnight — it reflects decades of sustained investment.

6. Parking pricing matters

Demand-based parking pricing is part of the toolkit that shifts travel behavior.

Bend Vehicle Miles Traveled Lessons

— applying it, and what's still unknown

HOW THIS RELATES TO THE PROJECT

- Meeting state policy mandates for vehicle-miles-traveled reduction
- Funding mode shift
- Where density is directed in relation to pedestrian/bike corridors & transit access

GAPS IN KNOWLEDGE

- Learning from cities that aren't anchored by significant student enrollment that have moved the needle on mode shift

**A PLAN FOR TOMORROW,
CRAFTED TODAY.**

BEND MADE



CITY OF BEND

BEND MADE

Language Assistance Services & Accommodation Information for People with Disabilities



Accommodation Information for People with Disabilities & Language Assistance Services

You can obtain this information in alternate formats such as Braille, electronic format, etc. Free language assistance services are also available. Please email accessibility@bendoregon.gov or call 541-693-2198. Relay Users Dial 7-1-1. All requests are subject to vendor processing times and should be submitted 48-72 hours in advance of events.

Servicios de asistencia lingüística e información sobre alojamiento para personas con discapacidad

Puede obtener esta información en formatos alternativos como Braille, formato electrónico, etc. También disponemos de servicios gratuitos de asistencia lingüística. Póngase en contacto en correo electrónico accessibility@bendoregon.gov o número de teléfono 541-693-2198. Los usuarios del servicio de retransmisión deben marcar el 7-1-1. Por favor, envíe sus solicitudes con 48-72 horas de antelación al evento; todas las solicitudes están sujetas a los tiempos de procesamiento del proveedor.

Accessible Meeting Information



Accessible Meeting/Alternate Format Notification

This meeting/event location is accessible. Sign and other language interpreter service, assistive listening devices, materials in alternate format such as Braille, large print, electronic formats, language translations or any other accommodations are available upon advance request at no cost. Please email accessibility@bendoregon.gov or call 541-693-2198. Relay Users Dial 7-1-1. All requests are subject to vendor processing times and should be submitted 48-72 hours in advance of events.

Información sobre accesibilidad en reuniones

Hay accesibilidad disponible en esta reunión. Si se solicita con antelación, se puede disponer de servicio de intérprete de lengua de señas, dispositivos de ayuda auditiva, materiales en formatos alternativos como Braille, letra grande, formatos electrónicos o cualquier otro tipo de adaptación. Póngase en contacto en correo electrónico accessibility@bendoregon.gov o número de teléfono 541-693-2198. Los usuarios del servicio de retransmisión deben marcar el 7-1-1. Por favor, envíe sus solicitudes con 48-72 horas de antelación al evento; todas las solicitudes están sujetas a los tiempos de procesamiento del proveedor.