Oregon Parking Lot Design Code Updates

Case Study | Cost Comparison
November 2024

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MACKENZIE.

Large Parking Area Standards

In 2022, the State adopted its new Climate-Friendly and Equitable Communities (CFEC) rules for land use and transportation planning. The rules require cities and counties to update their zoning codes to include additional standards for development, with implementation phased for jurisdictions over time. These will include requirements aimed at reducing the heat island effect of vehicle parking.

Some cities have extensions or exemptions from the rules, but they have already been adopted in several cities, including Portland, Tualatin, and Corvallis. There is some variation by jurisdiction, but the options below are typical per the State requirement. The parking lot design standards are particularly impactful for parking areas that are 1/2 acre or larger.

The following pages detail a cost comparison for the three typical options using the Gresham Vista Business Park (GV5) project by Specht Development. Gresham has not yet adopted the new rules (expected fall 2025), but this comparison shows the impact the new rules will have compared to Gresham's current codes.

Option 1
Solar Panels

Option 2
Fund Payment

Option 3
40% Tree Canopy

GV5

Gresham Vista Business Park

CASE STUDY:
Currently under construction in Gresham, Oregon, the Gresham Vista Business Park, Lot 5 (GV5) is a **Specht Development** project located on a 48-acre site with an approximately 530,000 SF industrial building.

Option 1: Solar Panels

Perlo ran a test case to determine the impact of this option based on 261 stalls, including the installation of solar panels with a generation capacity of at least 0.5 kilowatts per new off-street parking space. Separate building code revisions will require a minimum of 40% of the roof area have structural support for future solar panels (regardless of if solar is installed or not). The most efficient option is to mount panels on the roof structure; however, panels may be located anywhere on the property, but this will come with increased costs.

Cost
$2,224 per stall
$580,581 premium

Parking Impact
None

Energy Impact
150,000 kWh solar production annually.

Description	Quantity	Unit Price	Total
Roof Structure Upgrades	4,486 SF	$0 (required per min. code)	
Roof Penetrations	65 EA	$446.48	$29,021
Feeder Tie to Main Electrical Room	500 LF	$55.81	$27,905
Transformer / Electrical Panels	3 EA	$16,742.88	$50,229
Solar Supports	65 EA	$558.10	$36,277
Solar Panels	261 EA	$1,741.26	$454,469
Solar Development Assistance Credit	1 LS	($2,500)	
Solar Electric Incentive Credit	1 LS	($15,000)	
		Solar Panel Total	**$580,581**

- ***30% tax credit available (determined from total cost) for projects under 1 megawatt (1000 kW). E.g. 30% tax credit for this scenario would equal ($174,174.30).***
- *Cost benefit and offsetting costs are TBD based on building power usage.*
- *Refer to appendix for additional information on solar and tax incentives.*
- *$0.15/watt standard credit, up to a $15,000 maximum (if Energy Trust of Oregon trade partner is utilized). Additional incentives and maximums are available for Tribe, affordable housing, public entity, and non-profit projects.*
- *Accelerated depreciation available.*
- *Additional incentives are available if battery storage is utilized.*

Option 2: Fund Payment

Payment of at least $1,500 per new off-street parking space into a city or county fund dedicated to equitable solar or wind energy development, or a fund at the Oregon Department of Energy designated for such purpose.

Cost
$1,500+ per stall
$391,500 premium

Parking Impact
None, based on the test case of 261 stalls. However, this option discourages the provision of any surplus or future demand parking to reduce the fee.

Option 3: 40% Tree Canopy

Mackenzie designed and ran a test case for a portion of the site to determine how to meet these requirements (summarized below). The requirement is tree canopy covering at least 40% of the new parking lot area at maturity but no more than 15 years after planting.

Cost
$417 per stall
$88,000 premium

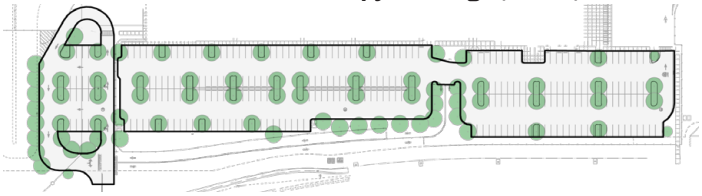
Parking Impact
Loss of 53 parking stalls

Heat Island Impact
Shaded pavement 30-40 degrees cooler on 93-degree day

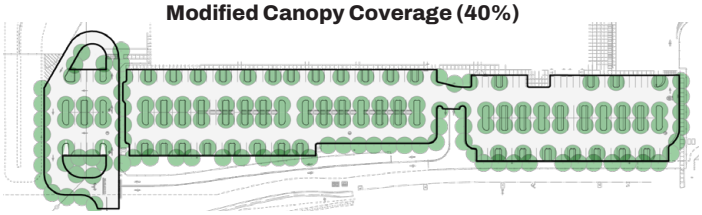
	Permitted	Modified	Delta
Impervious Area	108,246 SF	100,435 SF	-7,811 SF
Landscape Area	10,002 SF	17,811 SF	+7,811 SF
Canopy Coverage	29,561 SF	40,503 SF	+10,942 SF
Stalls	261	208	-53
Trees	78	160	+82

Calculation Assumptions
- *Curbs are excluded from landscape areas*
- *Tree canopy at 15 years is 25 foot diameter*
- *Parking lot area excludes long driveways*

Actual Permitted Canopy Coverage (15.7%)



Modified Canopy Coverage (40%)



Alternative Option
To avoid stall reduction, the parking lot could be enlarged by approximately 20-25% at additional land and/or development cost.

Option 3 is the most cost-effective, but also the most impactful to parking lot layout.
There are no minimum parking requirements in most jurisdictions with these requirements per the State requirements, but user parking needs would be affected.

Questions?

Contact us for more information.

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APPENDIX

Solar Panel Credits & Tax Incentives

Federal incentives are available to offset premium costs noted in Option 1. More information can be found **here**.

Incentive options are listed below:

☐ - *Potential incentives that could apply to Option 1*

			START OF CONSTRUCTION							
			2006-2019	2020-2021	2022	2023-2024	2025-2033	The later of 2034 (or two years after applicable year*)	The later of 2035 (or two years after applicable year*)	The later of 2036 (or four years after applicable year**)
ITC	Full Rate (if project meets labor requirements**)	Base Credit	30%	26%	30%	30%	30%	22.5%	15%	0%
		Domestic Content Bonus				10%	10%	7.5%	5%	0%
		Energy Community Bonus				10%	10%	7.5%	5%	0%
	Base Rate (if project does not meet labor requirements**)	Base Credit	30%	26%	6%	6%	6%	4.5%	3%	0%
		Domestic Content Bonus				2%	2%	1.5%	1%	0%
		Energy Community Bonus				2%	2%	1.5%	1%	0%
	Low-Income Communities Bonus (1.8GW/yr cap***)	<5 MWac projects in LMI communities or Indian land				10%	10%			
		Qualified low-income residential building project / Qualified low-income economic benefit project				20%	20%			
PTC For 10 years ($ 2022)	Full Rate (if project meets labor requirements**)	Base Credit			2.75¢	2.75¢	2.6¢	1.95¢	1.3¢	0.0¢
		Domestic Content Bonus				0.26¢	0.26¢	0.195¢	0.13¢	0.0¢
		Energy Community Bonus				0.26¢	0.26¢	0.195¢	0.13¢	0.0¢
	Base Rate (if project does not meet labor requirements**)	Base Credit			0.55¢	0.55¢	0.55¢	0.4125¢	0.275¢	0.0¢
		Domestic Content Bonus				0.055¢	0.055¢	0.4125¢	0.0275¢	0.0¢
		Energy Community Bonus				0.055¢	0.055¢	0.04125¢	0.275¢	0.0¢

**"Applicable year" is defined as the later of (i) 2032 or (ii) the year the Treasury Secretary determines that there has been a 75% or more reduction in annual greenhouse gas emissions from the production of electricity in the United States as compared to the calendar year 2022.*

***"Labor requirements" entail certain prevailing wage and apprenticeships conditions being met.*

**** Low-income communities bonus is an awarded credit; the years reflect when the awards are scheduled to occur. Awarded projects have four years to be placed in service.*