

Right Sized Loading

National Capitol Region Transportation Planning Board Freight Subcommittee



November 18, 2021



What is Right Sized Loading?

Efforts during the development process to ensure that loading docks and facilities are neither over or under designed



Right Sized Loading / 11.18.2021

Why worry about loading docks?



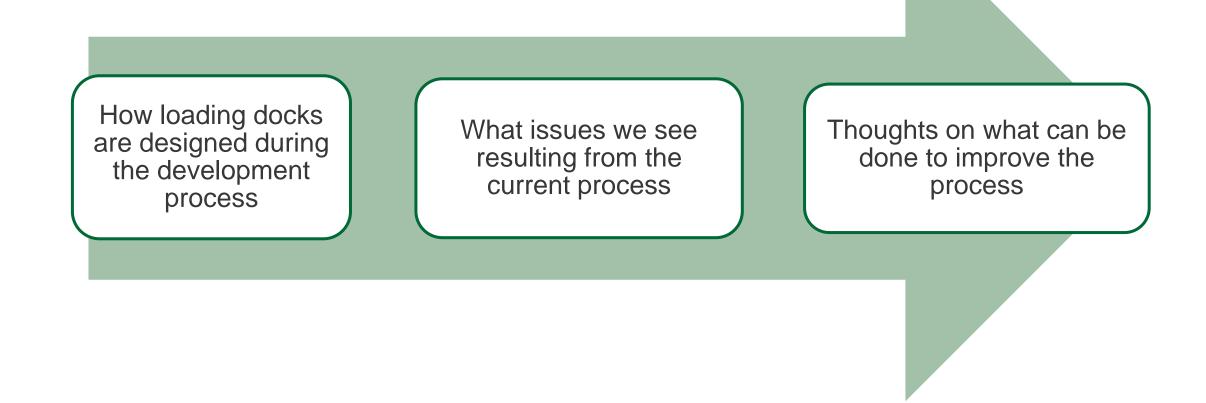
Over-designed docks can negatively impact other modes of travel:

- Large trucks need lots of room for maneuvering, which can increase curb radii, lane widths, and lead to higher speeds for smaller vehicles
- They amount of room needed for these maneuvers is usually is taken away from space for other curbside uses or pedestrians

Under-designed docks can be disruptive:

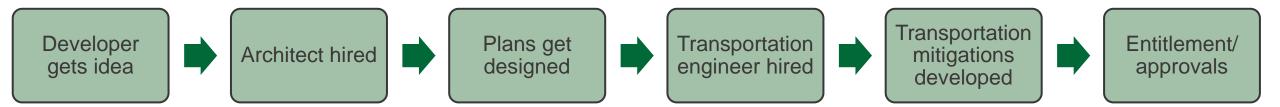
 Large trucks could try to load/unload curbside, double park, or block sidewalks/travel lanes

What this presentation will discuss:



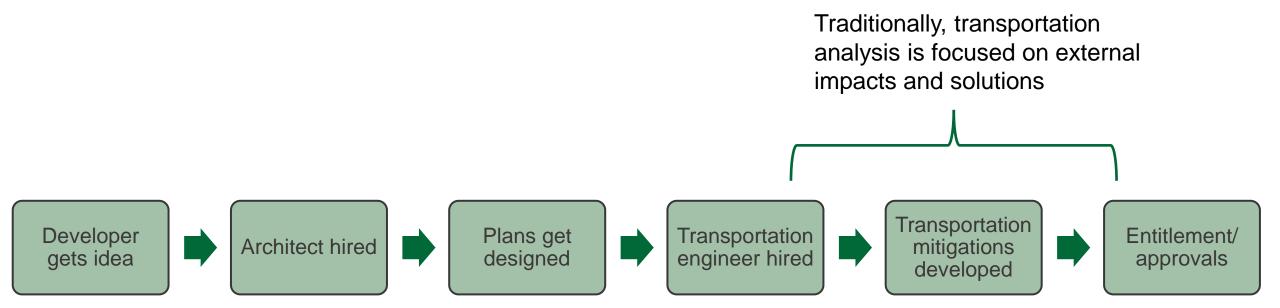


The Development Process:



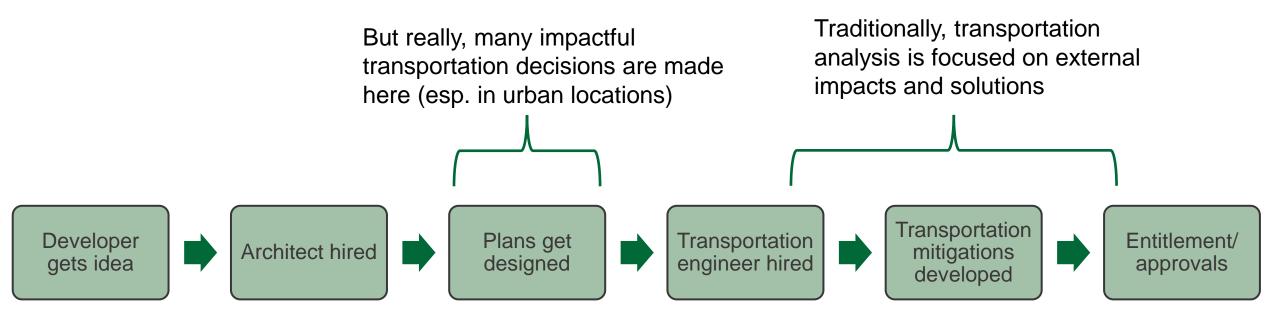


The Development Process:





The Development Process:



What this means: many transportation decisions during the development process are made by building/zoning codes and not by transportation professionals – including how loading docks are designed



How Architects Design Loading Docks

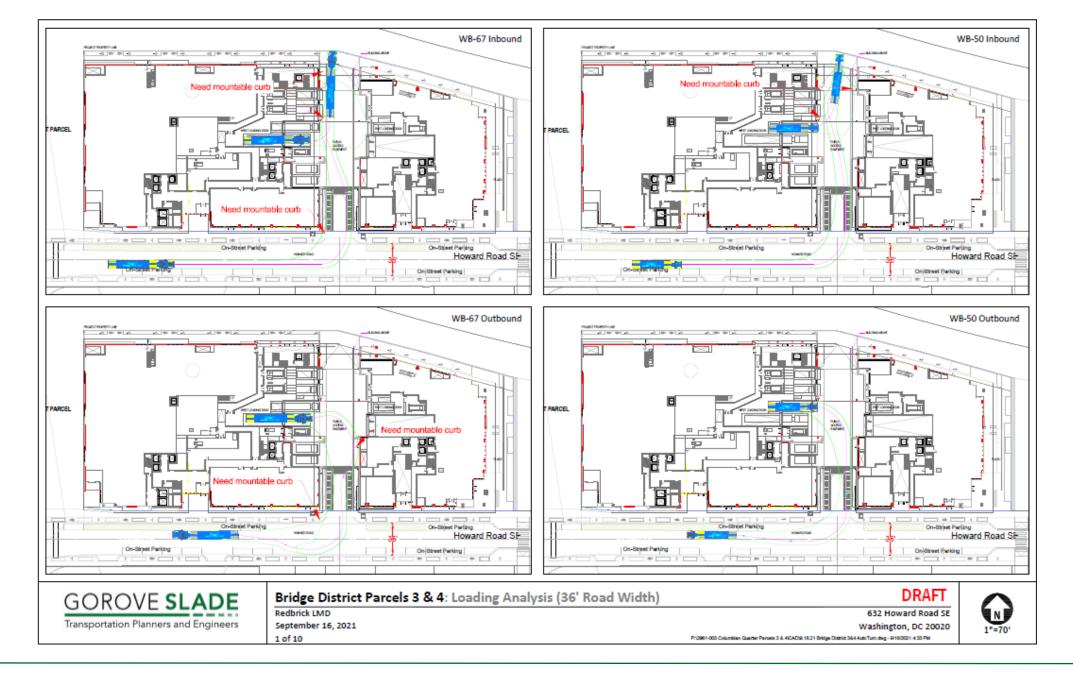
When tenants are NOT known:

- Build to zoning/building code
- Transportation engineers <u>may</u> check/refine the dock design to make sure it works
 - Depends on the jurisdiction/reviewer, there may be a requirement to provide drawings showing maneuvers (though it's easy to produce poor ones that show it works unless the reviewing agency knows what they're doing)
 - Often through the developer wants assurance that what's built work, especially for trash pick-up

When tenants are known:

- Usually for tenants like big box retailers and grocery stores whose loading needs are unique (they won't sign a notice of intent until they review the loading facilities)
- Architect gets a specific request and takes a first pass
- Transportation Engineers then run
 maneuvering analyses to check that it works







What about other types of loading?

Depends on jurisdiction

- Some will request to see a plan for general deliveries, including those from passenger cars and small vehicles. This includes any resulting impacts to curbside management.
- Some jurisdictions don't really review this at all (in many places the transportation review is still just focused on the external impacts of traffic).











Issues with the process

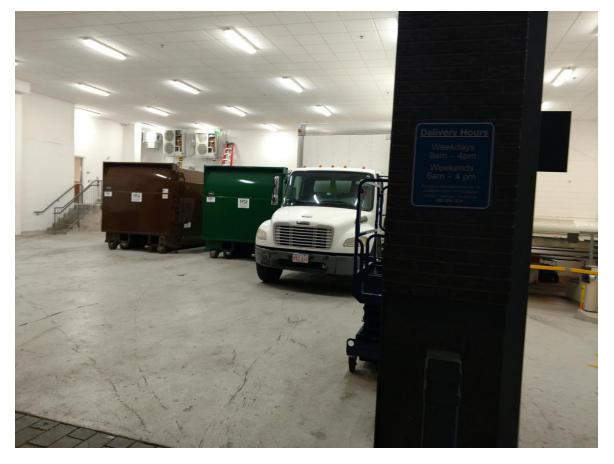
Encourages generic designs based on building/zoning code

Can lead to over-designed docks (usually code is conservative)

• Negative impacts on urban/pedestrian environment

Can lead to under-designed docks

- Code doesn't change as often as retail does
- Tenants can change after design
- Tenants don't have incentive to work with an under designed dock
 - Double-parking
 - Operational/management solutions often don't work in practice
 - Enforcement issues ('cost of doing business')

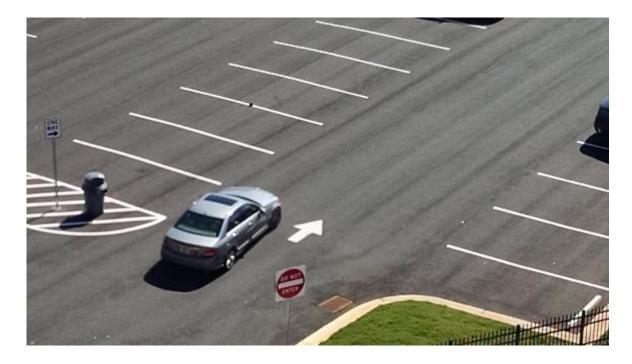




Comparison to Right-Sized Parking

Right Sized Parking

- Goal of RSP was to reduce the over-building of parking and encouraging driving as a mode
- Most often parking was designed to meet zoning minimums, sometimes tenant drove higher amounts
- A large amount of research data was needed to convince developers to reduce parking amounts
 - Asking for exceptions is cumbersome
- Some jurisdictions have drastically reduced parking minimums (or replaced with maximums)
 - Results in more input earlier in process (just can't follow code)
- Operations/management can solve under parked locations





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Right Sized Parking

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Right Sized Loading

Sounds familiar

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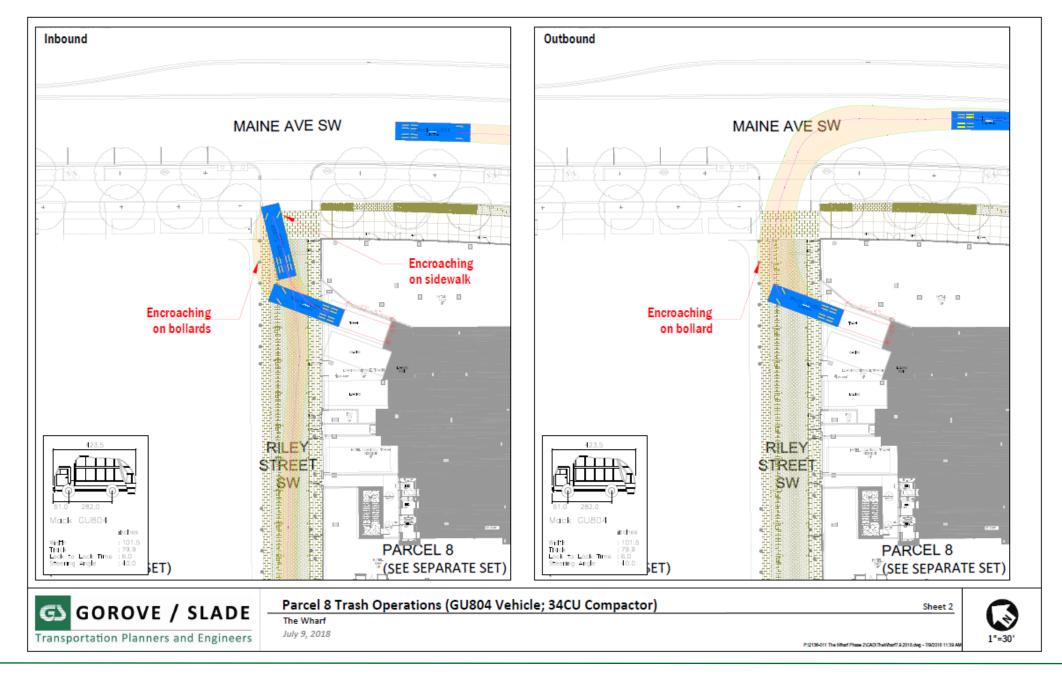
- Data on loading dock activity is in very short supply
- We've encountered issues with this in DC, where loading dock code was reduced (often the first floor is designed based on code, and developers are reluctant to change)
- Not the case for RSL

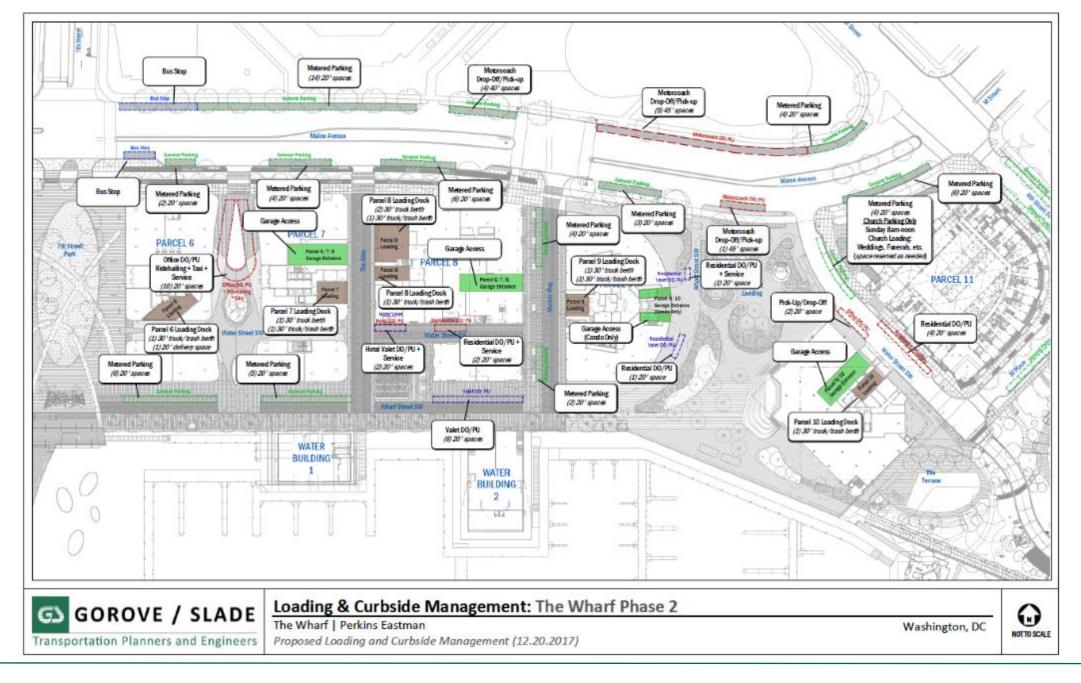


Potential Improvements to Right Sized Loading

- Increased review during approvals
 - Review of dock design
 - Maneuvering
 - Trash
 - Review of curbside uses
- More data to inform decisions
- Creative design solutions
 - Deliveries in garages
 - Curbless environments/flexible space
- Flexibility
 - In zoning code
 - Multiple designs for multiple tenants
 - Parking/curbside operations







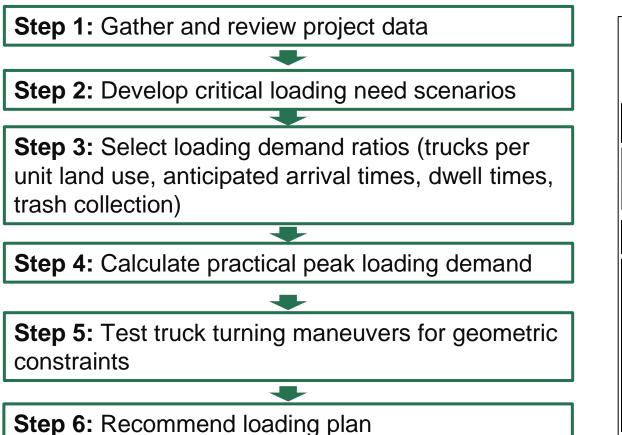
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Example: Shared Loading Analysis

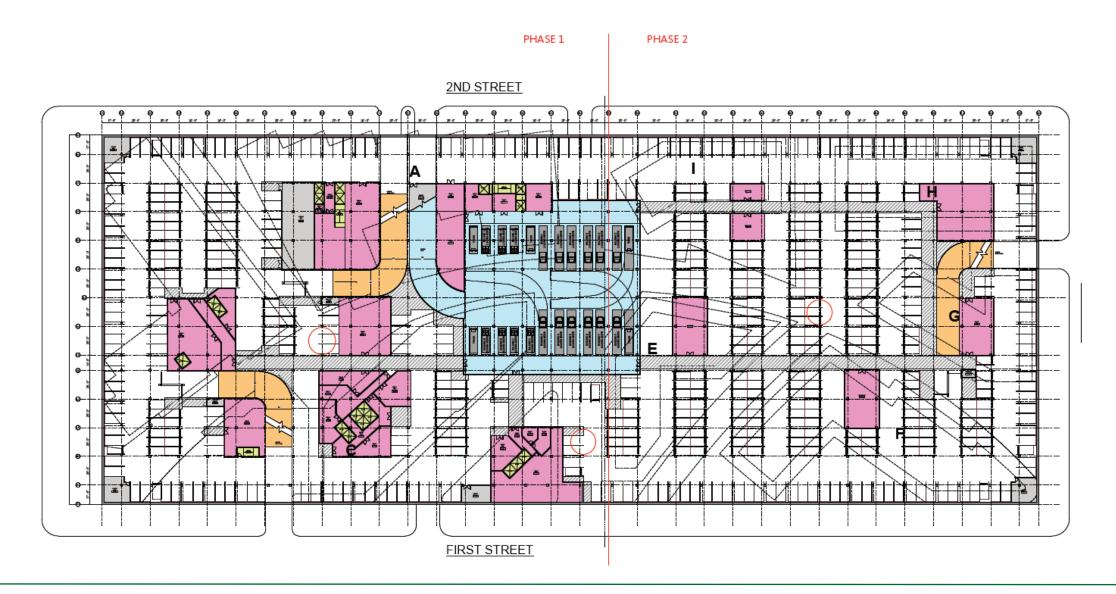
Process



Data Integrated into Spreadsheet Model

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Question: How much loading for a shared facility?





Data used in shared loading model

LOADING ASSUMPTIONS BY USE											
		Loading	gRatios		Dwell Times						
Land Use	40 ft Berths	30 ft Berths	Deliveries	Trash	40 ft Berths	30 ft Berths	Deliveries	Trash			
Residential	0.000 per unit	0.003 per unit	0.018 per unit	1 per bldg	4 hours	4 hours	0.5 hours	0.5 hours			
Office	0.000 per ksf	0.003 per ksf	0.015 per ksf	1 per bldg	1 hours	1 hours	0.5 hours	0.5 hours			
Hotel	0.000 per ksf	0.017 per ksf	0.029 per ksf	1 per bldg	0.5 hours	0.5 hours	0.5 hours	0.5 hours			
General Retail	0.180 per ksf	0.392 per ksf	0.286 per ksf	1 per bldg	0.5 hours	0.5 hours	0.5 hours	0.5 hours			
Fine/Casual Dining	0.060 per ksf	0.144 per ksf	0.174 per ksf	1 per bldg	0.5 hours	0.5 hours	0.5 hours	0.5 hours			
Fast Casual/Fast Food	0.171 per ksf	0.468 per ksf	0.430 per ksf	1 per bldg	0.5 hours	0.5 hours	0.5 hours	0.5 hours			
Grocer	0.226 per ksf	0.268 per ksf	0.234 per ksf	1 per bldg	3 hours	3 hours	0.5 hours	0.5 hours			

Note: Loading assumptions are based on data collected at various sites in the DC/MD/VA region.

Data sources:

1) ITE (Institute of Transportation Engineers) truck trip generation

2) Gorove Slade collected data

2) Data collected by jurisdictions (DDOT has provided us with some data)

All data sources have issues (e.g., ITE is daily, doesn't include any truck size information, hourly range of times, limited land uses)

Rates usually adjusted after consultation with client



Shared loading model: End Result

Option 1: Consolidated	Loading		
	LOADING DE	MAND MATRIX	
	Phase 1	Phase 1 + Phase 2	Overall
Practical Peak Demand			
40ft Berths	3	4	4
30ft Berths	3	5	5
Deliveries	3	5	5
Trash	3	7	7
Version 1: Service/Delivery Spaces	in Loading Area		
Provided Loading			
40ft Berths	4	6	6
30ft Berths	3	6	6
Deliveries	5	7	7
Trash	6	9	9
Surplus/Deficit			
40ft Berths	+1	+2	+2
30ft Berths	-	+1	+1
Deliveries	+2	+2	+2
Trash	+3	+2	+2



Potential Improvements to Right Sized Loading

- Increased review during approvals
 - Review of dock design
 - Maneuvering
 - Trash
 - Review of curbside uses
- More data to inform decisions
- Creative design solutions
 - Deliveries in garages
 - Curbless environments/flexible space
- Flexibility
 - In zoning code
 - Multiple designs for multiple tenants
 - Parking/curbside operations



QUESTIONS?

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