NUTS & BOLTS OF DOWNTOWN CIRCULATION: Streets, Traffic, Parking, Zoning & Customer Convenience

Oregon Main Street 2011 Conference, Baker City, OR

Session date/time: Thursday, October 6, 2011; 10:30 – 12:00 Noon

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PRESENTATION NOTES

I. INTRODUCTION (PART 1): A Tale of Two Intersections

A TALE OF TWO INTERSECTIONS

- Compare communities
- Compare main streets
- Compare intersection dimensions: street width, lanes, corner radii, crosswalk distances
- Compare downtowns: visible sidewalk activity, business mix, building density, vacancies, etc.

Chelsea's Main Street & Intersection

- Fewer traffic lanes, more traffic, no left-turn *lane*
- Tighter corner turning radii
- Shorter crossing distances for peds
- Slower motorist speed

Chelsea's Downtown:

- Multi-story buildings on all 4 corners, more density
- More floor space, fewer vacancies (close to none)
- More retail, healthier business mix
- More visible sidewalk activity
- Higher assessed property value

Tale's Lesson: there's at least an *association* (if not causal relationship) between street/intersection dimensions & economic health.

A Closer Look:

Pinckney

- Continuous left-turn lane is unwarranted.
- Unwarranted lanes = greater motorist speed.
- Continuous left-turn lane prompts wider corner turning radii & greater ped crossing distance.
- Corner gas station (one of 2 in core area).

Chelsea

- Non-rectangular intersection results in obtuse angles at corners.
- A "squared" intersection could *further* reduce crosswalk to 33' (Pinckney = 53').

II. INTRODUCTION (PART 2): Context of Circulation to Downtown Buildings

OBJECTIVES TO IMPROVE DOWNTOWN'S CIRCULATION & ECONOMIC HEALTH

- Improve retail environment by improving circulation for all users
- Efficient urban design: spatial density
- Minimize travel distances between shops
- Maximize building lot coverage within smallest CBD boundary
- Maximize customer conveniences
- Maximize sidewalk activity
- Avoid excess capacity in roads & parking
- Avoid customer barriers & space-eaters

CUSTOMER CONVENIENCES & THE DISTANCE BETWEEN SHOP DOORS

- Clustered shops
- Maximum customer sharing
- Strong retail linkages
- Maximum shared parking
- Maximum curb parking
- Minimum street crossing distances
- Pedestrian safety & comfort

CUSTOMER BARRIERS

- Highway design for higher speed traffic
- Excessive number of traffic lanes
- Excessive street pavement width for pedestrians
- Excessive distances between shop doors
- Mid-block driveways
- Parking lots that front the sidewalk
- No convenient curb parking in front of shops

SPACE EATERS

- Excessive road width needed to accommodate higher speed vehicular traffic
- Drive-thru businesses: driveways prevent curb parking; stacking lanes are total waste of space
- Private parking lots
- Excessive parking & underutilized land
- Zoning that requires excessive spaces between shops doors

III. ZONING: Building Placement, Building Form, Uses, & Off-Street Parking Requirements

ZONING ORDINANCE PROVISIONS THAT IMPROVE DOWNTOWN SHOPPING ENVIRONMENT

- Allow 100% lot coverage
- *Maximum* building front yard setbacks, or zero
- Allow mixed & stacked uses
- More building height at corners & for mixed uses
- Allow upper floor dwellings as use by right
- Restrict or prohibit drive-thru businesses
- Prohibit mid-block driveways on main streets
- *Maximum* off-street parking requirements (or none)
- Encourage sidewalk activities, projecting signs, etc.
- Retail frontage line

CASE STUDY OF CADILLAC: IMPROVING DOWNTOWN'S ZONING ORDINANCE

- PROCESS: Rezoning Committee included City zoning official, Planning Board chair, architect on MS Board.
- RESULTS: 90% of recommendations adopted by City, including: zero front setback; curb cut prohibition; restrict auto uses; minimum façade height; new office-service zones to buffer neighborhoods.

CASE STUDY OF DEXTER: IMPROVING DOWNTOWN'S ZONING ORDINANCE

- Parking study prompted amending the zoning ordinance: adjust boundaries; increase lot coverage; minimize front setback; greater building height; expand upper floor uses; restrict auto uses & curb cuts; allow projecting business signs; reduce off-street parking requirement.

- Results: most recommendations were implemented, as well as acquiring key underutilized sites for redevelopment .

BUILDING CONSTRUCTION CODES & RENOVATION: a word about *upper floors*.
Latest building codes make more allowances/flexibility for renovation, even though upper floor renovation designs may not meet 100% of new construction code. Many states allow flexible renovation formulas that achieve varying portions of the new construction code. Reasoning in these states: some compliance is better than no compliance. Flexibility varies from state to state. Don't assume the construction code will kill an upper floor renovation project: examine the code and any flexibility provisions; discuss with your building official.

IV. TRAFFIC & STREET DESIGN

OUTLINE

A. Transportation, land use & multiple-users of downtown's public right-of-ways
B. Highway Department goals & Main Street goals: they're different!
C. New directions, programs & buzzwords: Context Sensitive Design (CSD); Complete Streets; TOD
D. Highway department speak: road capacity, traffic speed, traffic data, traffic forecasts
E. Orientation to some technical aspects of traffic & roads: important examples.
F. Street design concepts: road diets; lane reduction; curb parking lanes; roundabouts; bike lanes; etc.
G Potential for misapplication of street design guidelines
H. To By-Pass, or Not to By-Pass, Downtown
I. Working with the Highway Department
J. Cost effective streetscape improvements
K. Road narrowing; case studies

CAPACITY, SPEED, VOLUME, DESIGN

- Barriers to effective downtown circulation
- Traffic counts & peak hour traffic patterns
- Traffic calming concepts: two-way traffic, multiple users, fewer traffic lanes, narrow lanes, shorter ped crossing distance, curb parking, speed bumps, center medians, etc.
- Roundabouts
- Diverted traffic & alternative routes
- By-pass

TRAFFIC "TRUTHS" OFTEN COUNTER-INTUITIVE; DEBUNK MYTHS FAVORING HIGHER SPEEDS

- Excessive vehicular speed does *not* indicate a busy road.
- Vehicular capacity flow does *not* increase as speeds rise above 30 mph.
- High speeds restrict left-turn movements; lower speeds offer more/safer opportunities.
- Relationship bet/ motorist speed & stopping distance is exponential as speed increases. E.g., 25 mph = 152 ft; 50 mph = 424 ft.

BARRIERS TO DOWNTOWN CIRCULATION

- High-speed vehicular traffic
- Too many traffic lanes
- One-way traffic on your main street
- Continuous left-turn lanes
- Excessively wide corners at intersections
- No convenient curb parking in front of shops
- Mid-block driveways

TRAFFIC CALMING CONCEPTS

- Two-way traffic
- Fewer traffic lanes; narrower lanes
- Divert commuter traffic to make room for other users
- Shorter ped crossing distance; ped bump-outs
- Narrower corner turning radius
- Curb parking
- Speed bumps, center medians, rumble strips
- Crosswalk texture
- Amenities for multiple users; clear signage
- Landscaping & trees
- Gateways or other district entry treatments

PLAN FOR BIKE/PED PATH NETWORK ON EXISTING STREETS

- Map destinations: downtown, schools, neighborhoods, recreational trails, etc.
- Inventory streets that link destinations: ROW width, existing pavement width, existing width between stripes, available width for bike path, posted speed limit.
- Recommend street improvements, e.g., (a) stripe/sign for 4-foot bike lanes, or (b) 8-foot shoulder paving, reduced speed limit, stripe/sign for 6-foot bike lanes.
- Opportunities for vehicular lane reduction & speed reduction.
- Opportunities for alternative transportation (e.g., Portland, OR)

ROUNDABOUTS

- Fewer conflict points, fewer crashes, less injuries
- Greater capacity, less delay, quicker left turns
- Versatile: asymmetric intersections; driveways; RR
- Less construction cost; zero maintenance cost
- Can be custom designed for specific speed
- Low speed (ped-friendly) vs. high speed
- One-lane (low speed, ped-friendly) vs. two-lane (high speed)
- Slows traffic, esp. good at district entry points
- Works well with, even key to, lane reduction plan
- Aesthetic opportunity

DIVERTED TRAFFIC & ALTERNATE ROUTES

- Reduced traffic often desirable: less thru-truck-commute traffic; enables lane reduction.
- Whether desired or not, always prepare answer to question: *"Where will the traffic go?"*
- Study alternate routes.
- Use MPO's traffic forecast model (usually shows diverted traffic cascades into dribbles)

TRAFFIC DATA IS ON YOUR SIDE

- Collect existing data on daily traffic volumes, peak-hour volumes, speed patterns, crashes.
- Street design is based on peak-hour movements at key intersection(s).
- Sources: DOT website, police, MPO.
- Sometimes, key data requires "do-it-yourself": pencil, paper & wristwatch can collect key intersection turning movement counts.
- Economic Development is *not* DOT's job; learn to speak their language: traffic & crashes.

INDEPENDENT ADVOCATE FOR MS ORGANIZATION

- *Find* an independent MS advocate experienced in re-designing arterial streets for lower speeds (e.g., CSD, traffic calming, road diets, etc.), not necessarily an engineer.

- *Duties:* gather/interpret data; understand DOT project schedule; get involved early; present new design concepts based on traffic data; answer questions at community meetings; define scope of formal traffic study if needed; advocate for MS at DOT meetings; recognize an opportunity when it arises.
- *Remember:* because MS has *different* goals than DOT and City, do *not* rely on them to represent MS-friendly street designs.

CONTEXT SENSITIVE DESIGN (CSD): Some DOTs are more flexible than others

- Model quote by Caltrans Director from "*Main Street: Flexibility in Design & Operations" (2002): "Caltrans recognizes the potential benefits of measures such as reducing the number of lanes in a downtown, reducing the lane widths, installation of traffic-calming devices, lowered speed limits, angled parking, wider sidewalks, roundabouts, raised medians, and a number of other street side amenities that provide a feeling that a town's Main Street is where you would want to be."*
- Many state DOTs have adopted CSD policies to avoid "one-size-fits-all" designs, and to customize street design strategies for different physical environments & contexts.
- CSD publications by AASHTO, ITE, FHWA.
- All CSD concepts are fully supported by guidelines in AASHTO's *Green Book*. With or without CSD programs, the *Green Book* guidelines are plenty flexible to support your ped-friendly street reconfiguration proposal.

PREPARE FOR YOUR MEETING WITH DOT

- Remember: DOTs work for *you*.
- Partner with your municipality.
- Study design concepts from view-points of your municipality & DOT.
- Beware of jargon: "improvement", "capacity", "standards or guidelines", etc.
- Beware the "technical brush-off".
- Don't accept "no" from someone who can't say "yes".
- Understand DOT planning process; get involved.
- Explain why DOT street design concept doesn't support goals of MS & community.
- Present compelling design concepts; express your plan's superiority in terms of traffic volume, road capacity, and crash safety.
- Follow-up: resolution of your elected officials; get state representative to lobby DOT for your project.

SOME FREQUENTLY USED DESIGN MATERIALS

- Main Street Dimensions
- Stopping Sight Distance
- Intersection Capacity
- Left Turn Lane Warrant
- ADA Ramps
- Parking Dimensions
- Parking Layouts
- Design Vehicle Turning Template

MISAPPLICATION OF DESIGN GUIDELINES

- Traffic Warrants vary greatly depending with speed
- Suburban design speeds are sometimes misapplied to slower speed downtown environment
- Traffic warrants for traffic signal, left turn lane, etc.
- Example: misapplied left turn lane insert taper

MISAPPLICATION OF SUBURBAN DESIGN SPEED FOR LEFT TURN LANE WARRANT IN A DOWNTOWN

Example: Pinckney's main intersection (30 mph speed limit on M-36):

- When a *high-speed (40+ mph) warrant i*s applied to the intersection's peak hour volumes, a left turn lane is easily warranted.

- However, when a *lower-speed warrant*, more appropriate to downtown, is applied to the intersection's peak hour volumes, the 332 sum is not even close to meeting the warrant of 800. See left turn lane warrant, by Ken Agent, on slide.

CASE STUDY: MICHIGAN AVE., EAST DEARBORN

- Lane reduction from 7 to 5; added curb parking.
- DOT projected 30% *increase* in accidents, grid-lock, fatalities, diverted traffic to neighborhood.
- Results after 6 months: 30% *decrease* in all accidents; no accident involving curb parking; traffic speed calmed to within speed limit; no gridlock; 16% decrease in traffic volume; no diverted traffic to neighborhood.
- Dearborn Police gives "thumbs-up."

How the business group succeeded:

- Downtown business organization felt its 7-lane highway, absent curb parking, was huge ED obstacle.
- Worked with City & Police to study prospects for lane reduction & redesign concepts.
- Studied other communities' roads & traffic.
- Studied alternate routes for diverted traffic.
- Consulted with an independent traffic expert.
- Conducted a test period, which Police approved.
- MDOT changed its mind, blessed the new street design & funded a new streetscape project.

CASE STUDY: 9 MILE, FERNDALE, MI

- Narrowed from 4 traffic lanes (no curb parking) to 2 traffic lanes + 2 parking lanes (in 1998).
- Results:
  - Added 40 curb parking spaces;
  - Slowed traffic, more people, more business;
  - Within 3 years, vacancies dropped from 25% to 5%;
  - Within 3 years, private investment exceeded public investment;
  - Retailers reopened front doors (facing 9 Mile);
  - No issues of accidents or neighborhood cut-thru traffic.

CASE STUDY: ALLEN ROAD, ALLEN PARK, MI

- DDA proposal: lane reduction from 5 to 3; change parallel curb parking to angle curb parking.
- Results of temporary test:
  - 3-lane road carried *more* traffic volume than 5 lanes (both daily & peak periods);
  - Speed greatly reduced (from 39 to 33 mph);
  - Some added delay, but insignificant;
  - Retailers liked angled parking;
  - Opposed by police chief & resident commuters;
  - *Not* implemented (even though local control).

CASE STUDY: MILFORD RD, HIGHLAND TWP, MI

- Highland DDA questioned the county road commission's intent to expand Milford Road's ROW from 66' to 104' for future utilities and road expansion. Twp Master Plan against expanding width.
- Negotiating, with the road commission, the narrowest street configuration for Milford Road was the dominating issue in preparation for installing underground utilities.
- Highland DDA engaged Oakland County Main Street & the National Trust to bring in a consulting team to examine the issue.

How the MS org succeeded:

- Current road had more than enough capacity for future, so no compelling reason to increase it;
- County's traffic forecasts were incorrect;
- Community stakeholder interviews supported the DDA vision.

- Results: DDA brokered a mutual, more sensitive resolution for street improvements. The community regained control over the downtown and planned its improvements within context of its master plan.

V. PARKING *"Parking is first and foremost infrastructure, not economic development."* - John Edwards

ISSUES & CONCEPTS

- Parking problems: perceived & real
- Understanding parking supply & the importance of curb parking
- Secrets revealed by a parking study: the demand side
- Methodology of a parking study
- Local parking policies & parking design options: examples
- The economic cost of excessive parking & underutilized parking
- Customer Convenience
- Shared Parking & Exclusive Parking
- On-Street & Off-Street Parking
- Short & Long-Term Parking
- Relationship of Parking to Floor Area

CUSTOMER CONVENIENCES

- *Shared*, or public, parking is available to everyone at most times. Exclusive, or private, parking is not.
- *Curb parking*, in front of shops, provides opportunities for more people to park conveniently; lots, further away from shop doors, are less convenient.
- Curb parking in front of shops is "golden", providing it *turns over* for short durations.

SHARED vs. EXCLUSIVE PARKING

- Shared (public) parking is more efficient than exclusive (private) parking, especially serving mixed uses.
- Provide maximum shared parking: at least 50%.
- Exclusive parking requires exclusive access: mid-block driveways & too many driveways reduce opportunities for curb parking, separate shop doors, and create safety hazards for pedestrians and vehicles.
- Shared parking does *not* require public ownership: private owners can coordinate efforts through public easements, remove lots from tax rolls, and re-design several small lots into one larger one.

ON-STREET & OFF-STREET PARKING

- Provide maximum on-street (curb) parking, preferably angled parking.
- Consider angled parking in road narrowing projects where speeds are slow.
- Parking lots should be accessed from side streets or from rear of block, not from front.
- Check zoning ordinance for appropriate off-street parking requirements.

SHORT-TERM & LONG-TERM PARKING

- *Short-term* parking (maximum 2 hours) is nearest shop doors. It's for customers and deliveries. Regulations should be enforced.
- *Long-term* parking is remote. It's for employees, residents, and longer shopping trips. Needs to be secure (e.g., lighting).

PARKING METERS

- Parking meters are, primarily, to promote *customer turnover*, and should never be determined by accounting or revenue needs.
- Conditions ripe for parking meters:
  - Customers are demanding them for turnover;
  - The shopping district is unique, special, and in high-demand;

- The shopping district is not surrounded by Other shopping districts with free parking.

RELATIONSHIP OF PARKING TO FLOOR AREA

- "Parking Ratio" = Number of Parking Spaces per 1,000 square feet of gross commercial floor area.
- Parking Ratio differs in different shopping environments:
  - Successful downtown: 2-3 spaces / 1000 SF
  - Commercial strip development: 4-5 spaces / 1000 SF
  - Regional shopping mall: 5-7 spaces / 1000 SF
- Off-street parking requirement for commercial uses Is <u>not</u> needed for a downtown with:
  - Retail + mixed uses;
  - Parking mostly public & reasonably distributed;
  - Ample curb parking that turns over;
  - Total parking supply of 2 -3 spaces / 1000 SF.
  - Exception: off-street parking requirement for dwellings and hotels.

BACK-IN ANGLED PARKING

- Advantages:
  - Loading is from the curb, not next to traffic lane;
  - Kids are channeled toward sidewalk;
  - Sight lines better when exiting the space;
  - Parking supply higher than with parallel parking;
  - Bike lanes are better accommodated;
  - Easier maneuver than parallel parking;
  - Time in travel lane is shorter, less delay than parallel.
- Disadvantages:
  - Takes up more space than parallel parking; same as pull-in parking.

MORE THAN A PARKING STUDY… a parking study can serve <u>many purposes</u> and resolve important arguments about your downtown:

- Create accurate *base map* of land uses, parking & street circulation;
- Inventory your district's *floor space*;
- Determine parking behavior: *occupancy & turnover*;
- Project *future parking demand*;
- *Resolve local issues* of supply & demand;
- Create new *management* programs;
- *Survey visitor attitudes* about many downtown issues, not just parking;
- *Identify* weak demand areas, *where new buildings can be constructed.*

METHODOLOGY OF A PARKING STUDY

- Mapping
- Data Collection
- Survey of parking behavior
- Analysis of parking behavior: *occupancy rates; turnover rates; parkers' walking distance; survey attitudes about business district*
- Analysis of attitudes about business district & parking
- Anticipated future development
- Analysis of land use
- Recommendations: parking system improvements; amend zoning ordinance; redevelopment strategies
- Management strategy for implementation of recommendations

CASE STUDY: DOWNTOWN MILFORD

Conditions:
- *Village*: affluent outer suburb, pop. 7,000, high growth, with traditional downtown.
- *Community goals*: increase density & retail in core; improve adjacent entry areas.
- Downtown inventory: 283,000 sf of floor space.
- 1,400 parking spaces: 35% public; 20% curb.
- Core area: 3.9 parking spaces per 1,000 GFA.
- *Issue*: improve parking system; meet future demand; need for a downtown parking structure?

Analysis:
- Inefficient land uses identified.
- Occupancy rates varied widely.
- Nearby long-term lots had low occupancy.
- Key public lot had high occupancy, but low turnover.
- Employees walked less distance than shoppers.
- Visitors valued retail variety, not parking.
- Projected future parking needs: uneven distribution, but manageable.

Recommendations:
- *New parking deck not needed.*
- *Improve parking management*: new time limits, more enforcement, better signage, convert private lots to shared parking.
- *Develop redevelopment strategies* for inefficient land uses: expand public parking in bank drive-thru & private lots; construct new buildings at select sites.
- *Develop pro-retail strategies*: zoning changes, aggressive retail recruitment program.

How downtown Milford succeeded:
- Parking Authority managed the study; all meetings included Village Mgr & DDA Dir.
- Village/Chamber "piggy-backed" a community priorities survey with the parking survey.
- Methodology: "gold" study included more, not less, surveys & analyses.
- Multiple analyses corroborated & convinced officials of study's primary findings: that management improvements were needed, not an expensive increase in parking supply.

CASE STUDY: DEXTER

Conditions:
- 2.0 parking spaces per 1,000 SF
- 60% public, 33% at curb
- Strong retail (supermarket, pharmacy, shops)
- Strong upper floor occupancy

Big Issue:
- If Village Council should approve a site plan for a major three-story commercial building proposed for construction on a public parking lot.

Recommendations:
- Multiple, and corroborating, surveys revealed adequate parking supply, but a need for significant management improvements, which were implemented.

Results:
- Site plan for the large commercial structure was approved and constructed.
- Key recommendation, to amend the zoning ordinance, was implemented by the Village, which stimulated development on key underutilizied sites.

VI. TOOLS & ALLIES to improve your downtown streetscape's form & function

A. City master plan & DDA development plan
B. Zoning ordinance & site design guidelines
C. Your municipality, e.g., police department; building/zoning department; planning board
D. Your state/regional highway department
E. Your Metropolitan Planning Organization
F. Federal/DOT programs
G. Main Street organization strategies

VII. LESSONS

Street Design

- Traffic data is on your side. So is the traffic engineer's "Green Book" of design guidelines.
- Street design *details* are important: lane width, turning radii, ped crossing distances, signal timing, etc.

Parking System

- Maximize shared, or public, parking.
- Maximize curb parking.

Zoning Ordinance

- Start early: form broad-membership task force, including municipal officials.
- Base task force objectives on downtown vision and master plans.

BIG LESSONS:

LESSON #1

STREET DESIGN, PARKING SYSTEM & ZONING ORDINANCE, together, are a troika or 3-legged stool: each is closely related to the other two. As a harmonious unit, this troika is greater than the sum of its parts. Avoid conflicts between each.

LESSON #2

The s*ingle-most cost-effective effort* for your downtown: big improvements to the street design, parking system, and zoning ordinance need not be expensive nor cost anything at all to the Main Street organization.

LESSON #3

NOW, during a "down" economy, is the best time to plan reconfigurations to your street design, parking system, and zoning ordinance. Take advantage of redesign opportunities presented by declining traffic volumes, reduced parking demand, and reduced new construction activity. For example:

Condition: declining traffic volumes.
Opportunity: more street width for non-vehicular users and more curb parking.

Condition: reduced parking demand.
Opportunity: underutilized public lots can be bid for taxable new construction purposes.

Condition: reduced new construction activity.
Opportunity: weak economic climate favors change and less regulation, such as reduced off-street parking requirement.