Placemaking with Pavers
Is it worth it?

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The Story – Planners vs. Engineers

- District of North Vancouver planners envisioned high-end town centres that featured pavers in every cross-walk, sidewalk and curb edge to create better public spaces.
- District engineering staff were unsure about the right approach and concerned about... maintenance issues, inventoring, availability of skilled labour, cost.
- A battle of wits ensued, and when the dust settled a startling conclusion remained...
District of North Vancouver Study

- Town Centre growth & planning initiatives
  - Enhance community livability
  - Design for all users
  - Contribute to streetscape quality and aesthetics

(in the right place)

Pavers = Character
Planning efforts led to more character areas and more pavers.

Engineering design and operations woes led to internal discussion about merit of pavers.

The future of pavers was in trouble...

A study was needed!
District of North Vancouver Study

- Study scope:
  Feasibility and applicability of pavers in strategic locations that support unique identities within District Town Centres
  - Best practices
  - Summary of advantages and disadvantages of pavers
  - Highlight agreement on use of pavers within streetscape
+ Detour to Seville, Spain
Plazas
Plazas
Plazas
Small Streets
Small Streets
Big Roads
Back to Canada...
Local Examples
City of Victoria – Government Street
Local Examples
District of North Vancouver – Edgemont Village
The Problem with Pavers

- Use Within Municipal Realm
  - Plazas
  - Sidewalks
  - Parking pockets
  - Cross-walks
  - Driveways
  - Pedestrian lanes & mews
  - Transit stop areas
  - Furnishing zones
  - Flexible spaces
  - Full road widths
The Problem with Pavers

- Technical considerations:
  - Interlocking Concrete Pavements are durable & effective if properly designed, constructed & maintained
  - Site specifics
  - Construction details
  - Paver management & maintenance
Key Considerations

- Traffic and Design Life
- Subgrade
- Base and Sub-base
- Bedding and Jointing Sand
- Edge Restraint
- Geotextile
- Drainage
- Paver Thickness and Laying Pattern

Typical ICP Laying Patterns
Specifications and Construction Details

- Construction details cover all the issues of a pavement including user safety and Americans with Disabilities Act (ADA) standards.
- Supplementary Specification for Pre-Cast Concrete Unit Paving prepared with District of North Vancouver, meant to replace the Master Municipal Specifications Unit Paving section.

https://www.mmcd.ne
Paver Management & Maintenance

- Stockpile
- Use Right Equipment
- Recycle
- Blend New And Old

Recommendation: DNV should prepare a maintenance manual
Preliminary Life-cycle Costing

- Sidewalk - 5 metres wide/ 1 kilometre long

Analysis includes initial costs, maintenance costs, rehabilitation costs, residual costs and salvage costs

<table>
<thead>
<tr>
<th>Sidewalk Structure Type (see Note 2)</th>
<th>Flexible Pavement Asphalt Surface</th>
<th>Interlocking Concrete Unit Pavement</th>
<th>Rigid Structure Portland Cement Conc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Construction Cost</td>
<td>$192,813</td>
<td>$480,000</td>
<td>$555,000</td>
</tr>
<tr>
<td>Present Value Maintenance and Rehab Costs</td>
<td>$65,459</td>
<td>$27,325</td>
<td>$48,328</td>
</tr>
<tr>
<td>Present Value Salvage and/or Residual Value</td>
<td>-$16,455</td>
<td>$0</td>
<td>-$7,707</td>
</tr>
<tr>
<td>Net Present Value (see note 1)</td>
<td>$241,816</td>
<td>$507,325</td>
<td>$595,621</td>
</tr>
<tr>
<td>Net Present Value per Square Meter (see note 1)</td>
<td>$48</td>
<td>$101</td>
<td>$119</td>
</tr>
</tbody>
</table>
Pavers... It’s worth it... so what are the next steps?

Urban Systems recommendations include:

• **Apply pavers in select locations** with greatest benefit to enhancing the community; sidewalks, boulevards, bulb-outs, plazas and nodes, select drive lanes

• **Test new specifications** and amend to suit and **ensure contractors are certified**

• **Focus on maintenance** including: sufficient staffing, training, equipment, inventory and resources to carry out maintenance required
## Urban Design Priorities

<table>
<thead>
<tr>
<th>Location</th>
<th>Use of Pavers</th>
<th>Urban Design Priority</th>
<th>Design Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crosswalk</td>
<td>yes</td>
<td>moderate</td>
<td>- herringbone pattern to lock pavers in place</td>
</tr>
<tr>
<td>Mid-Block Crossing</td>
<td>yes</td>
<td>low</td>
<td>- concrete footing under pavers and adjacent road pavement to eliminate settling ‘bump’ at crosswalk</td>
</tr>
<tr>
<td>Driveway</td>
<td>yes</td>
<td>moderate</td>
<td>- vehicle load weight and geotechnical required for pavement structure, drainage and paver strength</td>
</tr>
</tbody>
</table>
District of North Vancouver - Next Steps

- **Asset Management** – include pavers in plan
- **Areas** – define where pavers will be used
- **Specifications** – include in Bylaw to ensure correct construction
- **Maintenance** – make sure staff know what to do and when (e.g. sweeping)
- **Training** – for installation, inspection, maintenance etc.
Overcoming Barriers

- **Policy**
  - Not implemented
  - No cross-department buy-in

- **Planning**
  - Scope too narrow, not integrated
  - Multi agency agreement/ coordination

- **Design**
  - New ideas not proven, not in the guidelines
  - Concerns from fire/ ambulance/ goods delivery

- **Construction**
  - Contractors not familiar with new materials/ techniques
Seize the Opportunity!

- Rehab/ reconstruction
- Pilot implementation/ temporary work
- Location Specific
  - part of an existing pedestrian/ cycling/ parks plan
- Apply for Grant$
  - Age Friendly
  - Bike BC
  - Infrastructure renewal
  - Gas Tax – green & sustainable
Planners vs. Engineers.... Who wins?