Urban Land Institute
Northwest

ULI Technical Assistance Panel Recommendations

City of Kirkland - Totem Lake Stormwater Retrofit

CITY OF KIRKLAND
WASHINGTON

ULI Northwest

The Urban Land Institute provides leadership in the responsible use of land and in creating and sustaining thriving communities worldwide. ULI Northwest, a district council of the Urban Land Institute, carries forth that mission as the preeminent real estate forum in the Pacific Northwest, facilitating the open exchange of ideas, information and experiences among local, national and international industry leaders and policy makers.

Our mission is to:

- Build a regional vision of the Pacific Northwest that embraces and acts upon quality growth principles.
- Encourage the collaboration among all domains – public and private – of the real estate industry.
- Build consensus among industry and public leaders who influence land use, transportation, environmental, and economic development policies.

City of Kirkland

Kirkland is a suburban city located on the eastern shore of Lake Washington, surrounded by Redmond, Bellevue, and areas of unincorporated King County. Major transportation routes make Kirkland accessible to the region, including Interstate 405, which connects it with other nearby communities.

The City of Kirkland offers a unique downtown waterfront, which is the only Eastside downtown frontage along Lake Washington's shoreline.

Totem Lake

The Totem Lake sub-basin is a densely developed area, consisting of both commercial and residential development, as well as major arterial roadways. The area was largely developed in the 1970s, prior to the widespread implementation of protective stormwater controls. Totem Lake is often overwhelmed by high flows, which have caused flooding and contributed to water quality problems that may also impact the greater Juanita Creek watershed.

The City of Kirkland seeks recommendations from the ULI Technical Assistance Panel to determine how to implement stormwater retrofit facilities given the current land use and redevelopment potential of the Totem Lake area.

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EXECUTIVE SUMMARY

Totem Lake is destined to become an increasingly important center of employment, with substantial residential and mixed-use development, in the next 25 years.

At this time there is high potential for redevelopment within the boundaries of the urban center. With pressure for development increasing, the City of Kirkland should take steps to secure future environmental quality in Totem Lake and the region.

The construction of a regional stormwater detention facility can be an important part of a larger stormwater retrofit project that includes code revisions and a menu of low impact development options for public and private owners. A detention facility would have regional benefits, and could be financed based on City-wide or regional obligations for stormwater management.

The City has identified three redevelopable sites that represent important opportunities for stormwater treatment and detention. They include Totem Lake Mall East, Totem Lake Mall West and Totem Square.

Totem Lake Mall East appears to present important advantages over the other two sites. It would leverage investments already committed, including $15 million from the City to complete pedestrian-oriented improvements in a mixed-use center planned there. Also, there is regional value in investing in stormwater management in the Totem Lake Mall area because it is high in the watershed and would help with stormwater control downstream while precluding flooding from upstream stormwater. It could be placed partially or completely beneath the 120th Avenue Northeast right-of-way.

At the smaller scale, there are a number of options for specifying and incentivizing projects that are based on the principles of low-impact development.

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The value of stormwater management accrues to every citizen and business in Totem Lake and the City of Kirkland, as they work toward a healthy and sustainable environment. It also safeguards the entire watershed, upstream and downstream, in the prevention of flooding and related damages.

BACKGROUND

Totem Lake's projected employment and residential growth is based on the growing population in Kirkland and in the region, and it is supported by the designation of Totem Lake as an Urban Center in regional plans, including those of King County and Puget Sound Regional Council. Urban Centers have priority in transportation funding. The target density, according to the designation, is 15 households per acre and 50 employees per acre, with a minimum of 15,000 jobs within a half mile of a transit center.

Transit improvements in Totem Lake are consistent with its designation as an Urban Center. Totem Lake's Transit Center, dedicated to bus service, is co-located with two five-story office buildings at the Evergreen Medical Center, with two levels of parking below grade. It includes six bus bays, sheltered passenger waiting areas, and bus layover space. It is located on Northeast 128th Street, within walking distance Northeast 128th Street Overpass and Freeway Station, a transit stop with direct access to HOV lanes on I-405. Totem Lake is served by South Transit Express and Metro Transit buses.

Currently, commercial activity in Totem Lake is dominated by auto sales and service, which accounts for 60 percent of sales taxes in the Urban Center. The largest employer is Evergreen Medical Center, with more than 3,000 employees. The medical facility is convenient to transit, and has recently adopted a master plan. The 26-acre site of Totem Lake Mall, on 120th Avenue Northeast, has a new owner, a subsidiary of CenterCal Properties LLC. The company plans a low-rise million-square-foot mixed-use development with ground floor retail and restaurants. Office and residential space would rise above, and under new regulations allow heights between 75 feet and 135 feet. A conceptual plan shows a pedestrian-oriented shopping area with a new east-west boulevard

through the site. Generous public spaces are planned, with plazas, courtyards and pedestrian amenities. Working with the owner, the City of Kirkland has committed $15 million to fund road improvements related to the redevelopment of the Totem Lake Mall site, which is now completely paved and impervious to stormwater.

The Totem Lake sub-watershed is part of the Juanita Creek watershed. As such, it has a critical role to play in the environmental health and water quality of the region. At this time, only about 20 percent of the basin has stormwater treatment at or near current standards defined in the 2009 King County Surface Water Design Manual. The Urban Center contains more than 500 acres for which stormwater is untreated or well below current standards. These factors, combined with increasing redevelopment pressures, mean that the Totem Lake sub-watershed is in need of a substantial stormwater retrofit.

The timeliness of building stormwater management infrastructure cannot be overstated. Factors include:

Storm Events. Climate change may mean greater volatility of weather conditions and more frequent and intense storm events. In urban areas, the intensity of rainfall (as opposed to the total amount of rainfall over a period of time) is often what causes flooding, as pipe systems become overwhelmed. Stormwater retrofit would help to control runoff from these intense events and avoid or reduce the severity of downstream flooding, associated safety hazards, and property damage.

Opportunity and the leveraging of public investment. Because there are sites in Totem Lake that are presently underdeveloped, designing and building stormwater management facilities and features adds only incremental cost to redevelopment, instead of imposing the disruption and greater cost of retrofitting a recently redeveloped site.

The City of Kirkland was awarded a grant from the National Estuary Program, which has enabled it to study strategies and sites for stormwater treatment and retrofit. To begin, 230 discrete parcels were analyzed using desktop GIS screening tools. Criteria for selection included the presence of existing treatment and detention facilities, pollutant “hot spots” in Totem Lake, and available space.

Of the 230 parcels, 27 sites were evaluated using a rating system based on a combination of factors that include:

- Position within the watershed (upstream drainage potential and existing impervious conditions upstream);
- Natural qualities (infiltration potential) and current uses of the site (existing treatment);

- Potential for public private partnership in redevelopment that includes stormwater treatment.

Based on this rating system, the list of 27 potential sites was narrowed to six properties, three publicly owned and three privately owned. For the consideration of the ULI Northwest Technical Assistance Panel and their findings and recommendations on stormwater management covered in this report, these six were further narrowed to three privately owned sites: Totem Square, Totem Lake Mall West, and Totem Lake Mall East.

ECONOMIC ANALYSIS

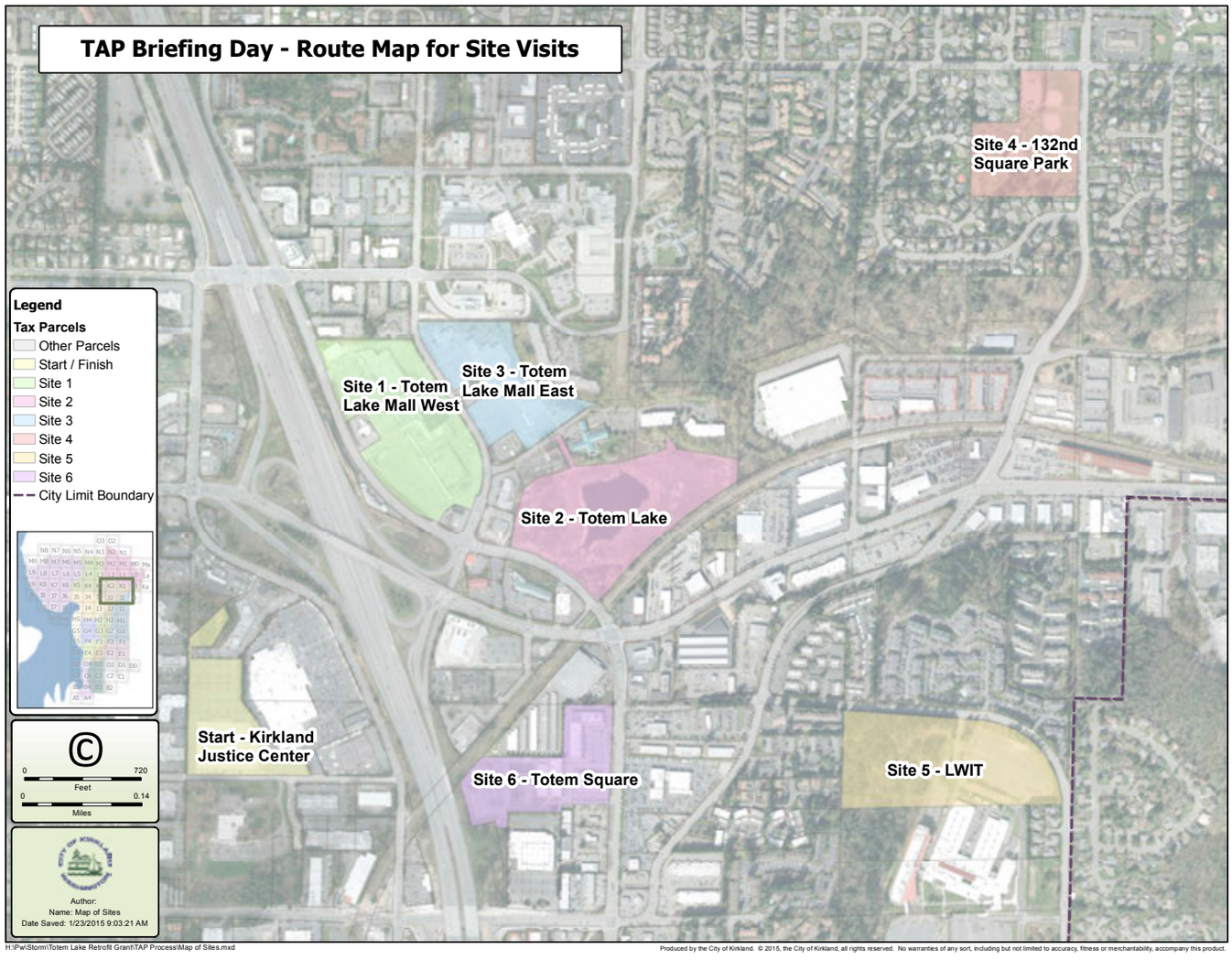
As the City of Kirkland moves forward with a plan for stormwater retrofit, an economic analysis will provide assurance that the investment will yield returns at many levels, from housing demand to business growth to a healthy and attractive environment in Totem Lake. The investment should support economic development, not only in Totem Lake, but elsewhere in the basin.

The City's first task, already underway, is to define the benefit area with the economic basis and land uses within it. If the benefit area can be shown to be larger than Totem Lake, extending upstream and downstream in the watershed, there may be opportunities for partnership with other neighborhoods or regional agencies. If the retrofit is a Citywide problem with related maintenance expense, a capital facilities fee may be called for.

As the City moves forward, stormwater requirements under current laws and regulations should be clarified. This will become the basis for defining proportional responsibilities among private property owners and developers, and setting out guidelines for becoming vested in a Citywide stormwater retrofit.

As the retrofit and related fees are being introduced to elected officials and property owners, it may be helpful to consider:

- Triple bottom line analysis



- Risks involved in waiting, including emergency management and civil liability

To arrive at an overall financial plan for achieving the retrofit, it is important to assess what resources are already available to the City in the form of design capability. These may be sufficient to arrive at a preliminary overall project cost for the retrofit.

The next step is to assess the funding sources available to apply to the retrofit, and to quantify the monetary gap between project cost and resources.

If an individual property owner is not required to treat stormwater to the standards desirable for a Citywide stormwater retrofit, then it may be necessary to understand the difference in costs between the required standard and the optimum standard, and provide incentives for reaching the higher standard.

The City has a range of options for financing the retrofit. These could include:

Conventional sources of revenue. These might include bonding, grants, Surface Water Utility fees, or the creation of a community facilities district.

Other sources. To spread and balance the costs of regional stormwater retrofit, other sources of revenue might include a Local Improvement District, connection fees, latecomer fees, or a fee-in-lieu program. The fee-in-lieu program would apply to known projects, and would be based on a number of factors including the size of the retrofit area, the number of property owners involved and current code restrictions, redevelopment potential, multi-phased development and the market cycle. When the market is down, so too will be the fees collected to support the project.

As a long-range option for financing stormwater retrofit, the City might consider the participation of a third-party investor.

When the objective is to site a substantial stormwater retention or treatment facility on a redeveloping private property, it is important that the City engage with the owner to find mutual benefit, define cost and refine design for maximum return on investment. A long-term agreement with the private owner is the key to reaching the goals of the City and the goals of the redevelopment. As much of the facility as possible should be positioned on public land or in the right-of-way. For the part located on private property, the owner-developer must have maximum use of land above a detention facility, while at the same time ensuring that the City has access for maintenance over the long term, as needed. Many factors are involved in balancing the two, including:

- Phasing
- Utility connections
- Site access
- Other (concurrent) land uses
- Environmental conditions (soils, groundwater levels, critical areas)

The City should be as flexible and creative as possible in finding advantages for the owner that could offset the extra costs. A preexisting obligation of the owner involved could be applied to a planned facility that is partially or completely on private land. Other offsets may include:

- Additional density allowances or lower parking requirements
- Increased lot coverage
- Purchase of easement
- Beneficial land use changes
- Right-of-way transfer

In and of itself, low-impact development is not a marketing tool to increase the value or desirability of a project. But elements of the low-impact development toolkit can provide multiple place-making benefits that accrue to the value of private property, along with factors like walkability and proximity to transit. The toolkit includes options that add livability and scenery to the urban environment when they are designed with care and sensitivity.

LAND USE REGULATION

To spread the benefit and the responsibility of stormwater retrofit in Totem Lake, flexible land use code revisions can enhance the benefits of low impact development. These revisions must balance overall stormwater management requirements with sensitive and critical areas, and take into account the values of greater lot coverage.

Options for surface water quality treatment include:

- Underground facilities in buffer areas
- Prescriptions for soil amendments

- Benefits of certain tree species

Height bonuses may not be an effective incentive for low impact development in Totem Lake, because the additional, incentivized density may not be supported by the market in Totem Lake.

Several stormwater management systems that provide some combination of retention and filtration in urban environments can be encouraged through incentives in the zoning code. These include:

Green roofs. Shallow planting beds on roof surfaces can support hardy plant species. When deployed extensively, green roof systems can absorb up to 60 percent of runoff and reach 90 percent filtration.

Stormwater planters. These planting systems consist of basic street greening elements like trees and herbaceous plants, enhanced by new technical knowledge and building strategies. Typically contained by concrete and often open at the bottom to the substrate, they provide retention and/or filtration for stormwater runoff.

Modular suspended pavement systems. A manufactured underground structure can support surface paving and traffic while providing loosely compacted soil within. The structure is hospitable for tree roots, and the mixture contained within can be enhanced for bioretention.

Permeable paving. Widely defined as any surface with a network of voids that allows for rapid infiltration of water into the ground, permeable paving can be made of a variety of traditional materials like stone, concrete and asphalt. The category also includes porous concrete and specialized systems that encourage plant growth. Installations typically provide 40 percent void space and may include undersurface reservoirs or drainage systems.

REGIONAL SOLUTIONS

When considering stormwater detention and treatment at the regional scale, major capital investments like detention vaults may be appropriate. Major design decisions include open water or basin versus open space over an underground facility such as a vault. These kinds of large facilities are called for where there is insufficient space or opportunity to slow or infiltrate stormwater by other means, and they can prevent flooding and erosion downstream.

A detention vault could be designed to contribute toward open space requirements for Totem Lake and the City. Such an open space could become a part of the connections between major features of Totem Lake, from the medical center to the transit station to Totem Lake Park or the trail network that includes the new Cross Kirkland Corridor.

The presence of a large detention facility below grade need not preclude many types of land use above it, or features that add value to the public realm. When specifying permissible uses and non-permissible uses over an underground facility, it is important to be inclusive. Code language should be checked so that it does not preclude structures, public open space or a water feature. When placing any regional detention facility within the public right-of-way, it is important to specify conditions and maintenance activities and responsibility.

A surface level retention facility could be designed to support certain public amenities like a park, water feature, community garden, sports field or pedestrian-friendly street. A sub-surface facility could support an open market, parking, a plaza, or a fountain.

The City has completed an exhaustive review of potential sites for regional stormwater detention in an at-grade or below-grade facility (vault). As the City of Kirkland moves toward implementation of a stormwater retrofit program, it should continue modeling performance, conducting economic analysis, and discussing alternatives with property owners.

Three large, redevelopable sites were advanced to the predesign phase as part of preliminary studies. They include Totem Lake Mall East, Totem Lake Mall West, and Totem Square.

The two mall sites are located on the east and west sides, respectively, of 120th Avenue Northeast, south of Northweast 128th Street and the

Evergreen Medical Center. The Totem Square site is to the south of that, bounded by 124th Avenue Northeast to the east and the Cross Kirkland Corridor along the northwest side.

All three sites present opportunities for stormwater treatment and detention. The following considerations may apply in choosing to focus on a site.

Totem Lake Mall East. Of the three sites, Totem Lake Mall East appears to present important advantages:

- It would leverage investments already made, including a commitment by the City of $15 million to complete new pedestrian amenities and improvements through a mixed-use center.

- There is regional value in placing an at-grade or below-grade stormwater management facility in the Totem Lake Mall area because it is high in the watershed and would help with stormwater control downstream and preclude flooding from upstream stormwater.

- The location presents potential to place a stormwater management facility partially or completely beneath the 120th Avenue Northeast right-of-way.

- There is potential for connections, on grade and below, with Totem Lake and the surrounding wetlands.

Totem Lake Mall West. This is a less opportune site, because the high water table there limits the constructability and location of a stormwater management facility. Because there is no plan in process for redevelopment there, planning an underground stormwater management facility may preclude optimum future development of the site.

Totem Square. Based on preliminary design for a stormwater vault and bioretention strategies, this site could provide full flow control for 20.3 acres, contributing substantially to bringing the City into compliance with current standards. Disadvantages include constrained access. It is bounded by 124th Avenue Northeast (a major arterial), and the Cross Kirkland Corridor (a natural area and trail).

CONCLUSION

The construction of a regional stormwater detention facility, at or below grade, is an intensive approach to stormwater management that involves significant engineering and construction, depending upon other uses of the surface. But it can be an important part of a larger stormwater retrofit project that includes code revisions and a range of low impact development options for public and private landowners and developers.

With public benefit in mind, the City should consider purchasing land around Totem Lake itself, and creating additional wetlands that could serve as a scenic amenity as well as a stormwater management option. In this connection, low-impact development is a factor in attracting other amenities in the form of private open space or pedestrian-friendly features. Near a regional system of natural areas like Totem Lake Park, with green streets, pedestrian amenities, and trails like the Cross Kirkland Corridor, investment in low-impact development and stormwater management at the street level can yield very high returns on investment. These features add to the market value of any property they adjoin, and that value is enhanced when there is an attractive and pedestrian-friendly public realm and urban environment.

Through high quality design and private participation, stormwater retrofit measures can become part of the identity and branding of the Totem Lake Urban Center. All of these are part of a larger path toward sustainable redevelopment that will make Totem Lake an attractive and marketable place to live, shop, and work.

GLOSSARY

Because water quality decisions and stormwater management can be very technical in their application, the following terms are defined for the purpose of this report.

Bioretention: a process in which contaminants and sedimentation are removed from stormwater runoff. Stormwater is collected into a treatment area, which consists of some combination of grass buffer strip, sand bed, ponding area, organic layer or mulch layer, planting soil, and plants.

Filtration: removal of undesirable constituents by absorption into a filter medium. Significant stormwater treatment can be provided in a broad mix of soils and planting, but filtration systems can also be engineered and installed for precise results in a larger system.

Flow control: management of the rate at which stormwater passes through a retention or filtration system.

Retention: the rate at which stormwater is held in place by various natural means (like permeable soil and plant roots).

Runoff: stormwater that flows on the surface until it is gathered into a sewer system or natural surface water. Traditional impermeable paving produces runoff.

Stormwater management facility: an underground structure designed to hold runoff on a developed site. It is a choice for managing the quantity of stormwater that flows into nearby surface waters, helping to reduce flooding and erosion. It will not improve water quality unless

it is part of a system that includes a filtration element.

Stormwater retrofit: The planning and construction of flow attenuation (water slowing) and/or water quality improvement facilities to serve existing development, with the goal of protecting the integrity of habitat in streams and lakes.

Watershed-basin: a land area where stormwater naturally gathers, running toward a common stream. A watershed is separated from neighboring watersheds by a drainage divide.

ULI Northwest Technical Assistance Panel Professional Biographies

Amalia Leighton, SVR Design Company, Seattle, WA (Panel Chair)
Amalia Leighton, PE, AICP, is a director, civil engineer, and planner at SvR Desgin Company. Amalia's experience encompasses leading complex teams with specialty consultants such as bicycle and pedestrian planners, health and walking specialists, social equity stakeholders, and urban designers specializing in sub-area or land-use policy. Amalia is a registered engineer and holds a bachelor of science in civil engineering from the University of Washington. She is vice chair of the Seattle Planning Commission.

Maiya Andrews, City of Burien, Burien, WA
Maiya Andrews is the Public Works Director for the City of Burien, and has previously worked for the cities of Des Moines and Newcastle. In addition to her public sector experience, Maiya was a consultant with contractor CH2M Hill, where she focused on transit improvements for Coal Creek Parkway.

Mark Griffin, Port of Seattle, Seattle, WA
Mark is Director of Real Estate Development for the Port of Seattle. He was previously with the City of Seattle's Office of Economic Development. Before entering the public sector, Mark practiced law, handling a variety of commercial real estate transactions. He is a graduate of the University of North Carolina and the University of Virginia and is a member of the ULI Northwest Advisory Board.

Deb Guenther, Mithun, Seattle, WA
As a partner and landscape architect at Mithun, Deb has built a team of landscape architects that bring exceptional quality, critical thinking, and award-winning design to projects. Deb is interested in the role of the public realm in our cities – how it connects people with their surroundings and each other. Nationally recognized for her leadership on green infrastructure and ecosystem service issues, she was awarded the American Society of Landscape Architect's Presidents Medal in 2010.

Matt Hoffman, Heartland, Seattle, WA
As a key member of Heartland's Project Management team, Matt is at the leading edge of the effort to leverage spatial and economic data to uncover opportunities and constraints in complex real estate markets. Before joining Heartland, Matt worked at a real estate economics-consulting firm and served as a project manager for an environmental engineering and firm based in Southeast Michigan. Matt is a licensed real estate broker in the State of Washington, and is an active member of NAIOP and the Urban Land Institute. He is a recent graduate of the ULI Northwest Center for Sustainable Leadership program.

Alison Lorig, Lorig Associates, Seattle, WA
Alison Lorig is co-owner of Lorig Associates, and serves as its President. Alison applies her extensive expertise as an engineer and project manager to ownership oversight of Lorig's portfolio of development projects and properties to ensure Lorig's work is delivered with the highest possible quality. Her commitment to carrying the company's tradition of excellence forward is helping to create lasting client satisfaction and ongoing positive impacts to communities throughout the region.

Tom Phillips, Tom Phillips & Associates, Seattle, WA
Tom is a planning and development consultant with his own practice, Tom Phillips & Associates. Previously, he served as a Senior Development Manager with the Seattle Housing Authority for almost ten years. As a lead project manager, Tom oversaw the development of the High Point neighborhood in West Seattle, a master-planned, mixed income community and winner of ULI's 2007 Global Award for Excellence. Tom is the President of the Board of the Neighborhood Farmers Market Alliance.

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Sandip heads the Real Estate group, as well as the retail, hotel, and restaurant industry team at Cairncross & Hempelmann. He practices primarily in the area of commercial real estate transactions, including retail, office, and industrial leasing, purchase and sale agreements and real estate financings. He holds a J.D. from the University of Washington School of Law.

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