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CAPITAL PROJECTS



CARING FOR YOUR INFRASTRUCTURE TO KEEP KIRKLAND HEALTHY, SAFE AND VIBRANT



Will Denton, Kirkland's streets engineer, inspects Kingsgate's Northeast 145th Street to ensure it is in good enough condition for street sealing. Kirkland's contractor will slurry seal in late July and early August more than 20 sections of Kingsgate roads.

THE STREET **SAVER**

The City of Kirkland is protecting 35 sections of Kingsgate's residential streets this year with a layer of slurry seal

Kingsgate's Northeast 145th Street doesn't look like it's in urgent need of maintenance. The neighborhood road that meanders through 100-foot conifers has no potholes; no

sections of alligator cracks.

But, says Will Denton, Kirkland's streets engineer, this street is nearing a tipping point.

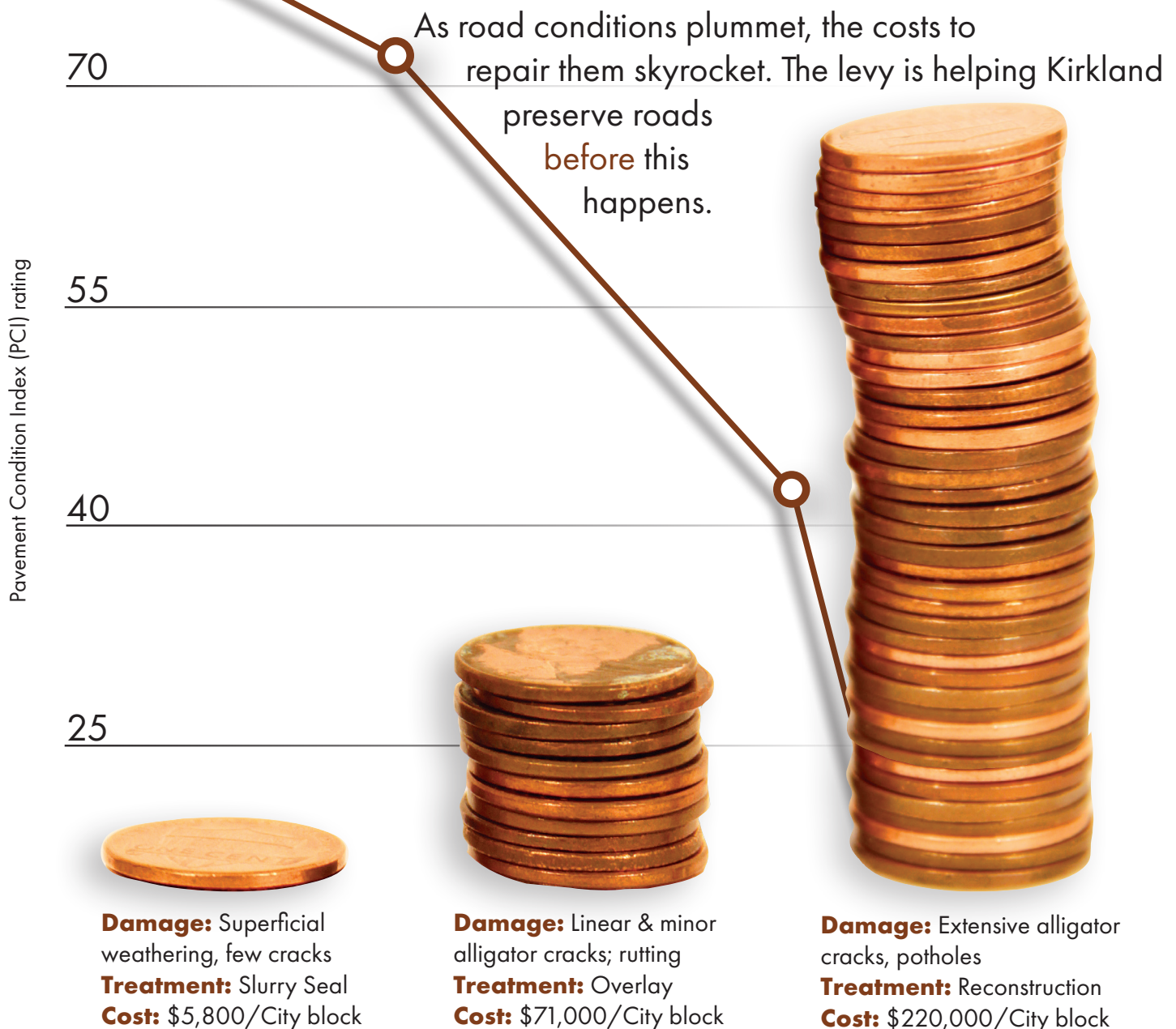
"Without maintenance soon," Denton says, "this street's rate

TO LEARN MORE

■ Contact Will Denton, streets engineer, (425) 587-3872; wdenton@kirklandwa.gov

■ Or Christian Knight, outreach: (425) 587-3831; cknight@kirklandwa.gov

THE PRICE OF DELAY



of deterioration will accelerate. And it would quickly become exponentially more expensive to rehabilitate.”

This summer, the City of Kirkland will provide that maintenance for Northeast 145th Street and sections of more than 30 others in the Kingsgate

neighborhood.

They’ll achieve this with a mixture of water, fine gravel and emulsified asphalt, called slurry seal, which can extend the useful lives of residential streets by a decade.

Like paint on a house, slurry seal protects

What Kirkland residents said about slurry seal

In 2021, the City slurry sealed streets in Bridle Trails, Rose Hill, Moss Bay and Houghton. Here's what residents said about their streets.

“It's great. It has been really nice. It smoothed things out for us and allowed us to walk without tripping. It's really worked out well.

—Susan, Central Houghton
Received slurry seal in 2021

“They had given a lot of warning and information. That was good. There were some loose particles at first. But they swept the road after a couple days. It's fine now. Roads have to be resurfaced, at some point.

—Sue, South Rose Hill
Received slurry seal in 2021

“It was a very smooth experience. After the construction, there was no debris or rocks. City of Kirkland came to clean shortly after that. There was a tiny bit of gravel. It was no big deal.

—Filippo, Bridle Trails
Received slurry seal in 2021

“I remember getting the notice about it and thinking it was going to be difficult. But in retrospect, we gave plenty of notice to everybody, there were no major issues. It's smoother now than it was shortly after the City applied the treatment.

—Ellen, Moss Bay
Received slurry seal in 2021

“They were pretty fast. It was a little bit gritty. It did smooth out over time. It took three or four months for it to smooth out.

—Mary, Bridle Trails
Received slurry seal in 2021

“For awhile, it was kind of loose—like black gravel. I don't think it's loose now.

—Bonnie, South Rose Hill
Received slurry seal in 2021

what's beneath it from, moisture and weather. And it does all this at an estimated cost of \$5,800 per city block.

The 2012 levy

Residents doubled Kirkland's capacity to slurry seal their neighborhood streets in 2012, when they approved the Streets Levy. Since then, Kirkland has used slurry seal to extend the functional lives of more than

100 lane-miles of neighborhood roads.

“Slurry seal isn't structural. It is only a preservation method.”

The constraints

Like any solution, however, slurry seal comes with a few catches:

“Slurry seal isn't structural,” Denton says. “It is only a preservation method.”

—Will Denton, P.E.
Kirkland's streets engineer

This means slurry seal is not ideal for Kirkland's more-trafficked thoroughfares, such as 124th Avenue Northeast, which, north of Northeast 132nd Street, accommodates nearly 13,000 vehicles every day. For streets like 124th Avenue Northeast, Kirkland will use a process called ‘overlay.’

Overlay, more commonly known as paving, replaces three to five inches of the street's surface with an entirely new paved surface. That new surface is smooth on the first day of its application. It costs \$71,000 per city block—14 times more than slurry seal.

Slurry seal's role as a preservation method also means it's usefulness is quite limited.

“It preserves streets,” Denton says. “It doesn't repair them.”

ON THIS MAP ►

A Kirkland contractor will slurry seal the highlighted street sections on this map in late July and early August.

道路封闭

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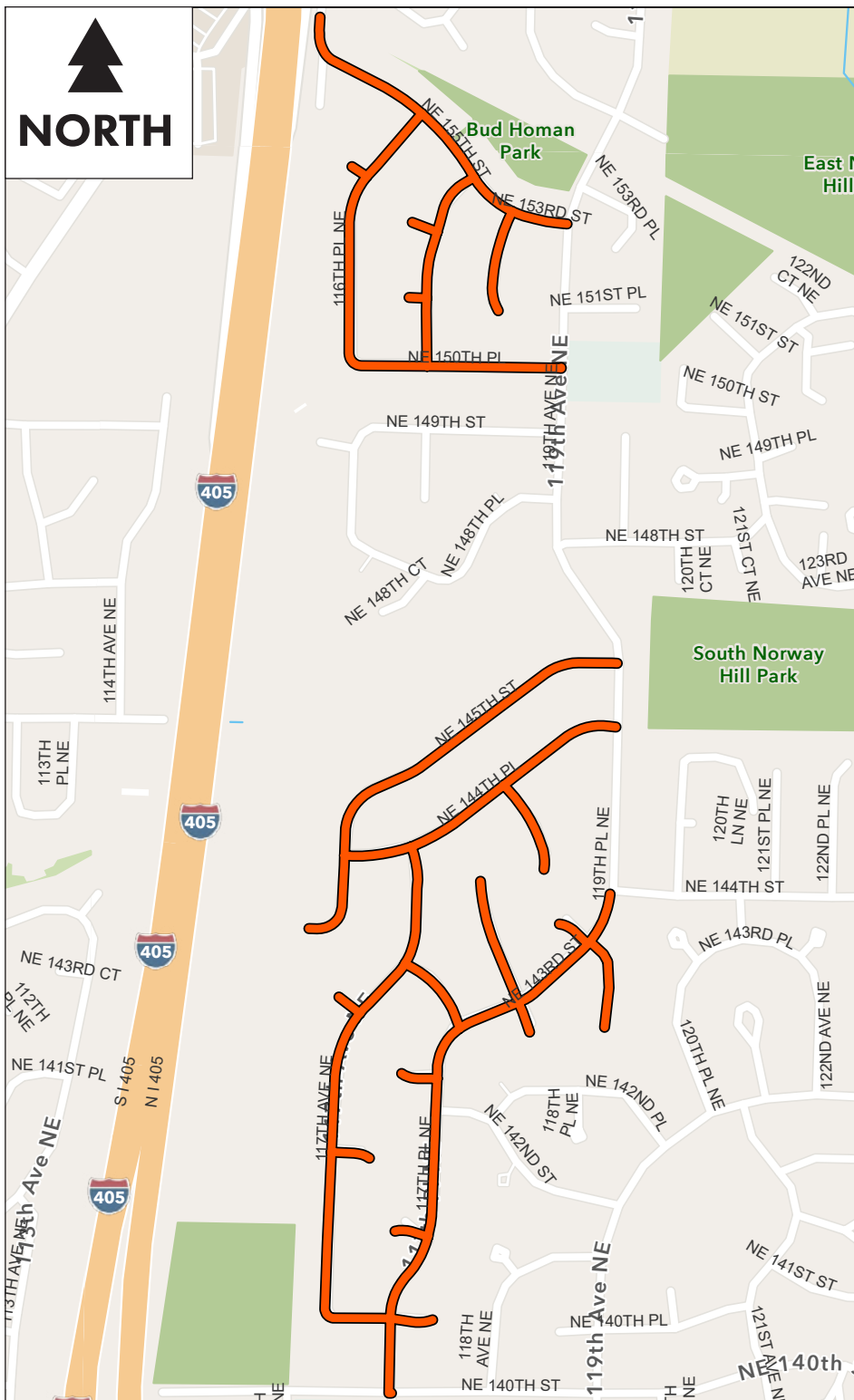
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This map illustrates the contractor's street-by-street schedule. Rain and unplanned contractor delays will alter this schedule. Check the www.kirklandwa.gov/slurryseal daily for updates to the schedule.

WHAT TO EXPECT WHEN WE'RE PROTECTING

The slurry seal guide that reassuringly answers the questions of residents, from the preparation stage through application and follow-up.

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1.) PREPARE THE SITE

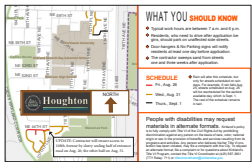
One to three months before application

City crews repair small areas of damaged pavement and ask residents to prune their vegetation—especially low-growing vegetation—to create 14 feet of vertical clearance above the right-of-way so work crews can apply slurry seal up to the curb. If residents do not or cannot trim vegetation that obstructs the public right-of-way, work crews will. Crews also sweep pavement. Roads remain open.



2.) PREPARE RESIDENTS

One to two weeks before application



Residents receive street-by-street slurry seal schedules on a postcard. Crews finalize street preparation. Roads remain open.

3.) NOTIFY RESIDENTS

At least one day before application

Work crews remind residents of slurry seal date with a door hanger at least one day before applying slurry seal. Residents remove all personal items—including cars—from the road and prevent water from flowing from their properties into the street.



4.) SEAL THE ROADS

Day of application

Work crews close the street and apply slurry seal. Road closures begin as early as 8 a.m. and end as late as 6 p.m. Some closures begin later in the morning. After application, slurry seal is brown and sticky. To prevent damage, residents do not drive, bike, walk, or allow their pets on the street until the slurry seal has cured and the City has re-opened the street.



5.) ADAPTING TO THE NEW SURFACE

Up to one year after application

The new surface is rougher and sheds some of the larger aggregate, creating gravel deposits on top of the new slurry seal. The contractor's crews sweep the streets twice—approximately one week after application and then again three weeks after application. As time progresses, traffic smooths the surface by dislodging the larger aggregate and pushing smaller aggregate into the underlying pavement. Sweepings and rain also help.

This means it is only effective on streets that are still in good condition. It is not effective for roads that have too many deep cracks. Those roads are generally beyond slurry seal's capacity to protect them.

"Within a few weeks, the cracks that are in the road will appear in the slurry seal, as well," Denton says. "And moisture will continue to infiltrate the street and undermine it."

\$220 K

The estimated costs in 2025 per City block for reconstructing a road from the subgrade to the surface.

The cracks will expand, he explains, multiply and form webs of alligator cracks.

Eventually

chunks of asphalt will break loose, leaving behind potholes and two less-than-ideal methods for addressing them: The first is a never-ending schedule of patching—cutting rectangles of pavement and road base out of the street and rebuilding those from the dirt to the pavement.

"Patching gets expensive very quickly," Denton says.

The other method is even more expensive: Reconstruction.

Reconstructing a road means crews first need to remove the five inches of pavement, the compacted gravel base and, sometimes, the sub-base of compacted dirt, and build it back up. It is prohibitively expensive, costing on average \$220,000 per block.

That cost is what has made road reconstruction a once-in-a-decade project in Kirkland and it's why, Denton says, Kirkland doesn't have a worst-first streets maintenance



A toddler pushes his bike up Northeast 61st Street in the Bridle Trails neighborhood, shortly after Kirkland treated it in 2012 with slurry seal.

strategy," Denton says. "Our focus is on keeping as many streets as possible in good condition."

The selection process

Kirkland has more than 450 lane-miles of neighborhood and collector roads. To identify which roads are in ideal conditions for slurry seal, Denton relies on three data sources—two of them are human-generated. The third is computer-generated.

Every four years, a team of pavement specialists walks along randomly selected sections of every road

in Kirkland, counting the number and types of distresses in the surface—rutting, raveling, swelling, slippage cracking, transverse cracking, and, yes, alligator cracking.

“Some distresses, like alligator cracking, are more problematic than others,” Denton says.

70

The Pavement Condition Index score generally required for Slurry Seal to effectively preserve residential and collector streets.

Each of these distresses reduces the street’s pavement condition score on the Pavement Condition Index, a nationally used system for measuring road conditions.

A 100 on the Pavement Condition Index means the street is in perfect condition.

A zero means the road has no functioning surface and requires total reconstruction. For slurry seal to be effective, the street should generally score near or above 70, Denton says.

The Pavement Condition Index score of Northeast 145th Street, for example, is 80.

Denton enters the scores into the City’s

pavement monitoring software, which uses variables, such as time and projected traffic-load to forecast how the Pavement Condition Index scores of every road in Kirkland will decline with time.

The software, then, uses these forecasts to recommend a treatment plan for each road.

“So I know if we are going to prevent this street from falling out of slurry seal’s reach and into an indefinite cycle of patching potholes, I know I need to treat it sooner, rather than later,” Denton says.

These treatment plans are based largely on the streets’ Pavement Condition Index scores, which are in turn based on surveys of randomly selected sections of each street.

“In general,” Denton says, “we expect a slurry seal treatment to keep a street’s Pavement Condition Index score above 70 for five to eight years. Some streets will deteriorate faster than the curves predict. And some, like Northeast 145th Street, will deteriorate slower. That’s why we have to go out there and walk these roads.” ◀

Sealed roads smooth out with time, traffic & sweepings

One week later ...



Street: 91 st Court Northeast
Sealed: Aug. 30, 2016
Photo: Sept. 8, 2016

Seven months later ...



Street: 91 st Court Northeast
Sealed: Aug. 30, 2016
Photo: April 3, 2017

One year later ...



Street: Northeast 131 st Place
Sealed: Aug. 3, 2015
Photo: Sept. 8, 2016



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WE'RE SAVING THE STREETS

The City of Kirkland is extending the lives of your neighborhood roads this summer. This document will help you understand how it works, how the City chose your street and how you can help.



The intersection of a neighborhood street, left, and an arterial, right, shows the differences between a street the City had then-recently slurry sealed and one it had, not-so-recently repaved. The surface of Northeast 61st Place, left, which received slurry seal a few weeks before this photo was taken, is grittier with finer aggregates that traffic will eventually press into the pavement beneath it. The surface of 132nd Avenue Northeast, right, by contrast, is smoother upon application, and filled with larger aggregate that, with time, neglect and oxidation, will dislodge to form the beginnings of cracks, which lead to alligator cracks and then potholes. Without slurry seal, a repaved street can last 20 years. With three to four rounds of slurry seal, it can last more than 50 years.

ON THIS MAP

A Kirkland contractor will slurry seal the highlighted street sections on this map in late July and early August.

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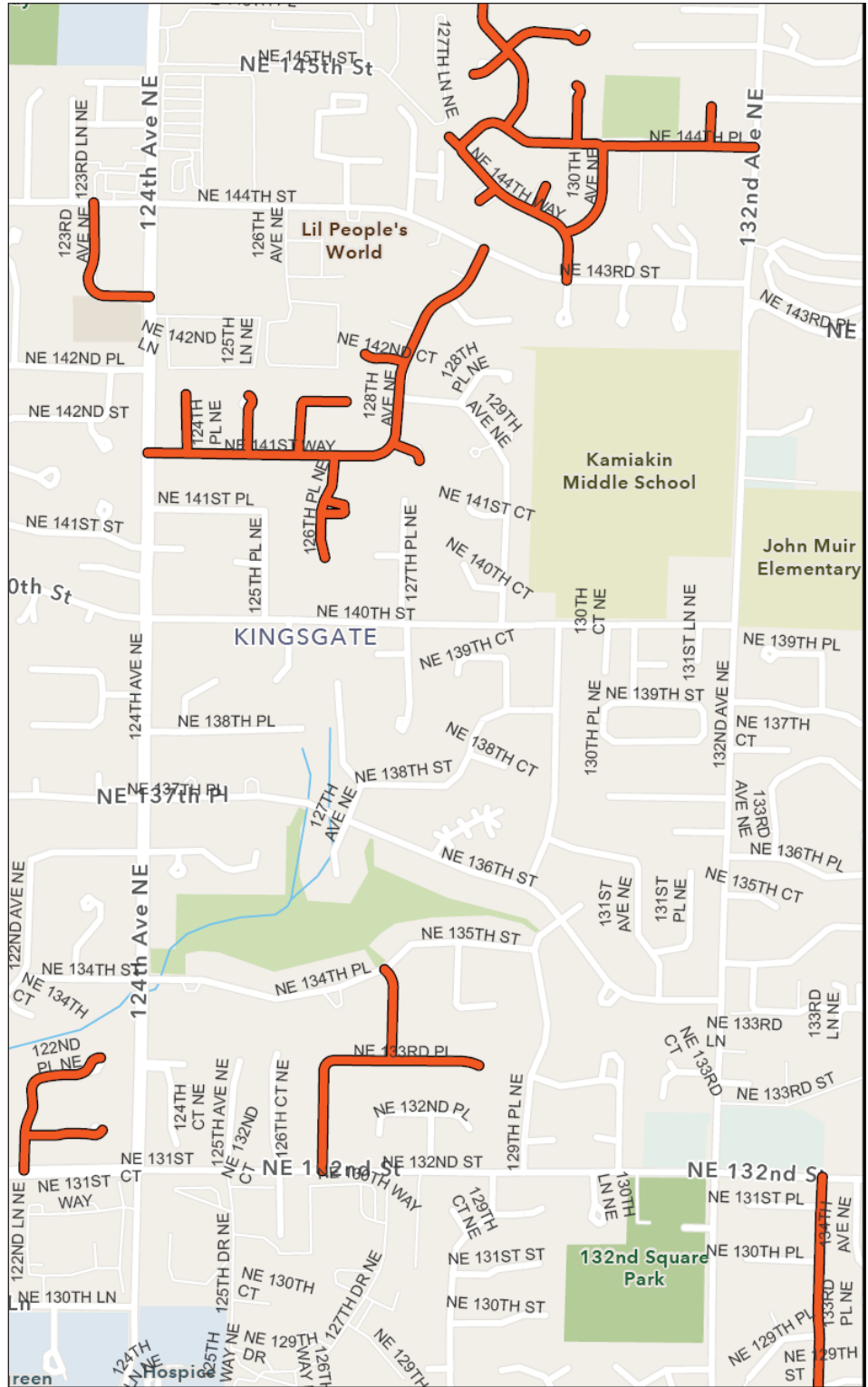
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