

HOW IT **AFFECTS YOU**

Find out if your street is on the list and what you need to do to be prepared for slurry seal. **Page 4 & 5**

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CAPITAL PROJECTS



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



To ensure it is still in good enough condition, Kirkland Streets Engineer George Minassian cross-checks North Rose Hill's Northeast 113th Street last fall for slurry seal treatment. Kirkland is treating nearly 30 lane miles on more than 150 sections of residential roads this summer in the Kingsgate, North Rose Hill and North Juanita neighborhoods.

the street **SAVER**

Kirkland is protecting 10 lane miles of roads in North Rose Hill with a pavement protector called slurry seal

The map is telling George Minassian to include 127th Place Northeast.

The street is telling him something very different. Near its intersection with Northeast 113th Place, a pair of cracks rip across the cul de sac like torn newspaper pages. And in the center of its cedar-barked island are three conifers. Their roots sprawl beyond the circular planter and into the street.

"You see this. And this. And this," says Kirkland's streets engineer, pointing to protrusions in the pavement. "That's

a problem. All these cracks would show up in two to three weeks. This would be a waste of money. We're going to scratch this one out."

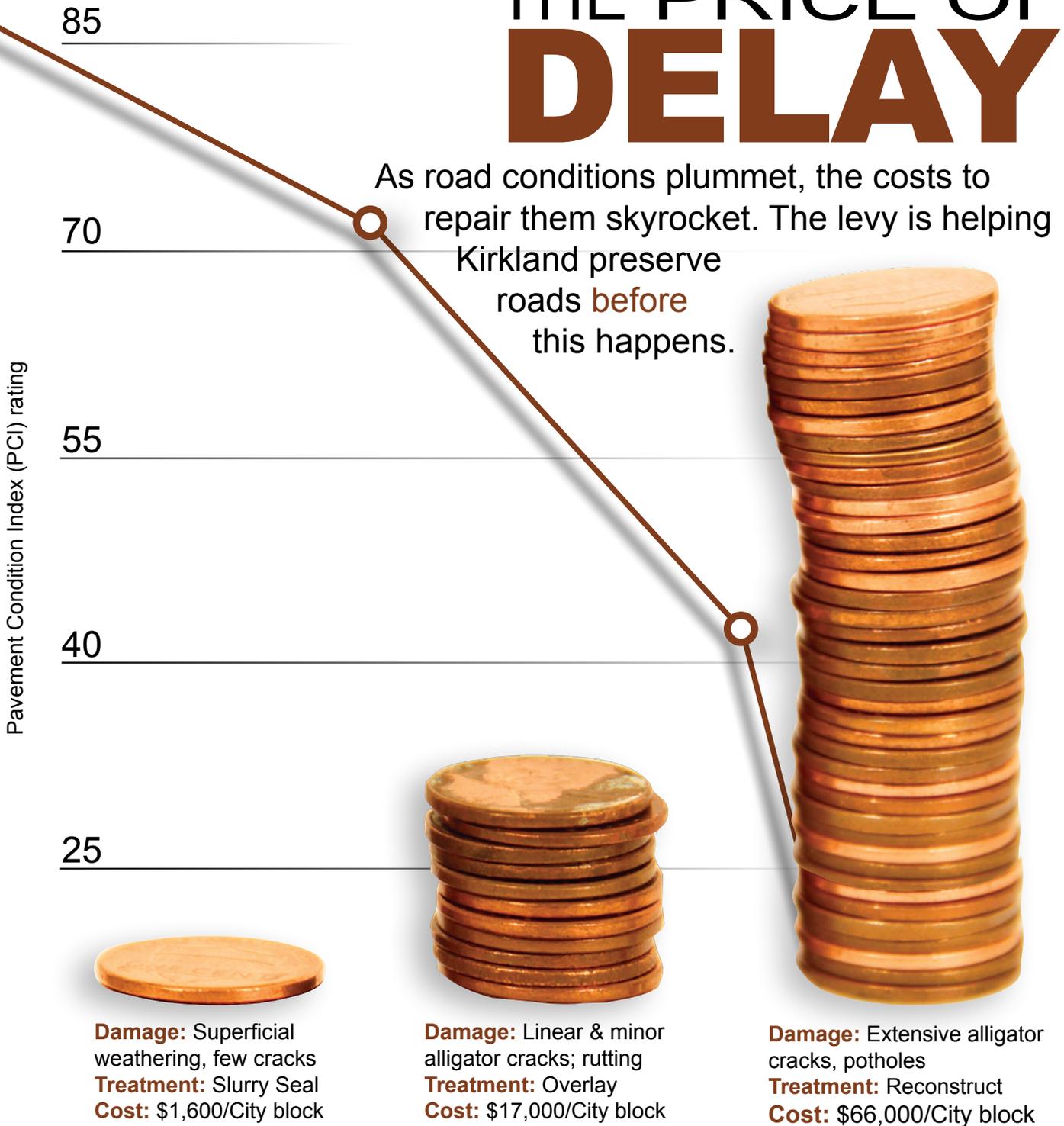
And as a result, traffic and weather will continue to grind away the asphalt—the glue of the pavement—until chunks break loose.

TO LEARN MORE

■ Contact George Minassian, engineer: 587-3829; gminassian@kirklandwa.gov

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

THE PRICE OF DELAY



Webs of alligator cracks will morph into archipelagos of potholes that will undermine the road’s basic structure.

The quick-fix for 127th Place Northeast, says Minassian, a Ph.D. in pavement surfaces, is patching: remove the damaged sections of pavement down

to their subgrade and then build them back up.

“Too many patches is expensive,” Minassian says. The long-term solution is reconstruction. At a cost of \$66,000 per block, however, reconstruction is just not feasible for a road that serves so few people.

In fact, Kirkland has reconstructed just one road

What Kirkland residents said about slurry seal

City staff asked focus group participants for their thoughts on slurry seal. Here's what they said:

“Best ever. Awesome. Love it. They came, they did it. It's terrific. If someone is going to fix my street, this is awesome. I love this!

—Mark, *Bridle Trails*

Received slurry seal in 2012

“They brush it with a brush truck a half-dozen times. It took several months to clean up that aggregate. Now it's smoothed out. It's been nine months. It's still rough.

—Grant, *Kingsgate*

Received slurry seal in 2012

“I thought it would be like oil. A dusty, dirty, country road. That's what I was envisioning. And then of course it hardened and appeared to be like asphalt.

—Frank, *North Rose Hill*

Received slurry seal in 2012

“I remember reading that a couple weeks after they were done they would come back and clean stuff up. There was some stuff on the road and loose areas. But I thought it was fine.

—Lynda, *Finn Hill*

Received slurry seal in 2013

“My kids bike up and down the road. It's not as comfortable now.

—Mary Ann, *Bridle Trails*

Received slurry seal in 2012

“I thought it would be a pain ... because of parking—having to park a block away. It was just inconvenient. After I saw it, though, it was worth it.

—Diane, *Bridle Trails*

Received slurry seal in 2012

section in the last decade: 341 feet of Juanita's 97th Avenue in 2013.

The solution

Minassian's challenge is to get to the road before the road gets to the point of no return.

Kirkland's residents helped tremendously with this effort on Nov. 6, 2012 when they passed the 2012 streets levy. That \$3 million annual levy is already doubling the lane miles of neighborhood roads Kirkland can preserve.

As a result, Kirkland will preserve 29 lane miles of neighborhood roads this summer on 154 road sections in the Kingsgate, North Juanita and North Rose Hill neighborhoods.

And the substance the City of Kirkland will use to preserve them is “slurry seal,” a mixture of emulsified liquid asphalt—an oil-like substance—mixed

with tiny pieces of gravel, which Minassian calls “aggregates.” When it dries, slurry seal acts like sunscreen for these lightly trafficked roads—sealing out weather and moisture—thereby extending the life of the road by five to 10 years. And it does this at a rough cost of \$1,600 per city block.

The constraints

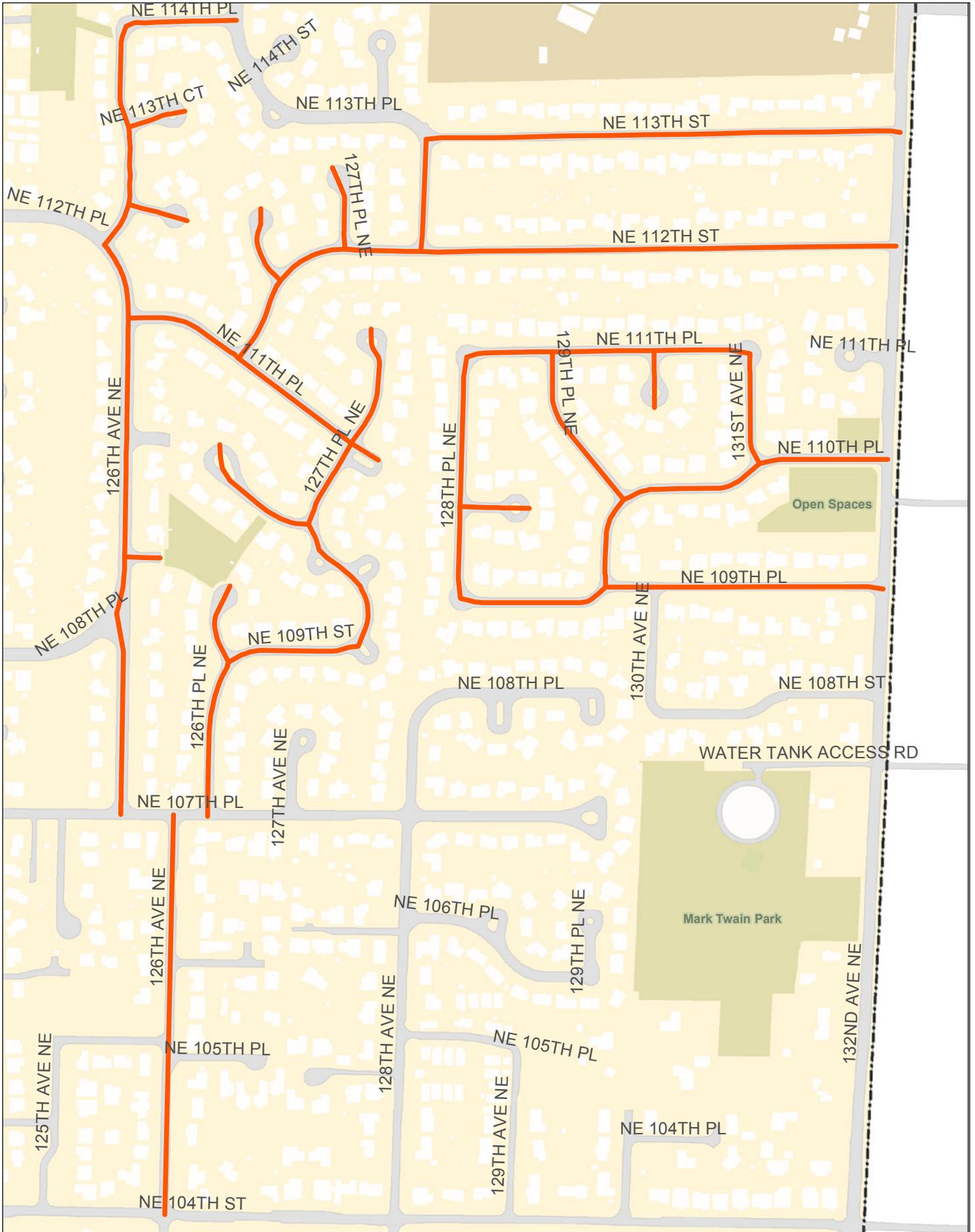
Like any solution, however, slurry seal comes with a catch. Actually, a few of them:

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

This means it's not suitable for Kirkland's more-trafficked roads, such as Northeast 132nd Street, which accommodates more than 10,000 vehicles every day. For those arterials, Kirkland uses a process called “overlay,” which replaces two- to five inches of the street surface with an entirely new surface. The average cost for overlay is \$17,000 per block—nearly \$50,000 less expen-

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

—George Minassian, Ph.D.
Kirkland's streets engineer



This summer, Kirkland is extending by five to 10 years the lives of the highlighted streets on this map.

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.



PHASE 1

City crews repair small areas of damaged pavement. Residents prune their vegetation—especially low-growing vegetation—to create 14 feet of vertical clearance near the right-of-way so work crews can apply the slurry seal up to the curb. Roads remain open.



PHASE 2

As the application date nears, work crews sweep pavement surfaces and remove any vegetation that infringes into the right-of-way. Crews make final repairs to pavement surfaces. Roads remain open to traffic with



possible, temporary delays.

PHASE 3

Work crews notify residents at least one day prior to slurry seal's application. Residents remove all motorized vehicles, and personal items from the road. Residents don't water their lawns or wash their cars. Work crews apply slurry seal to the street. The road is closed for one day.



PHASE 4

After application, the slurry seal is brown and sticky. To prevent damage to the street's treated surface, residents keep motor vehicles, bikes, pets and themselves off the street until the slurry seal has cured and the City of Kirkland has re-opened the street.



PHASE 5

The new road surface has more friction and sheds some of the finer aggregate, creating a sandy surface. Work crews usually sweep the streets twice—approximately one week after application and then again three weeks after application.

ALTERNATIVE FORMATS

In compliance with Title VI, all information on this process can be made available in alternative formats, including language interpretation and American Sign Language upon request, by calling (425) 587-3831 or TTY/TTD (425) 587-3111.

sive than reconstruction.

Slurry seal's role as a preservation method also means it's not suitable for roads that have too many 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," Minassian says. "And all that mois-

\$66 K

The estimated costs for reconstructing a road from the subgrade to the surface.

ture will continue to infiltrate it."

Unless, of course, Kirkland's streets maintenance crews patch the cracks, which requires workers

to tear out the damaged pavement and the gravel bed beneath it and build it back up to the road.

Still, "Too many patches is expensive," Minassian explains. "Eventually, it becomes more cost-effective and more effective in general to just overlay it."

Kirkland has more than 450 lane miles of neighborhood and collector roads. Many of those roads are within a few years of that point of no return.

The selection process

To determine which roads are most urgent, Minassian 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 are more problematic



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

than others," Minassian says.

Each of these distresses reduces the street's condition, which is reflected in a 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 higher than 60, Minassian says. The Pavement Condition Index score of 127th Place Northeast for example, is 62—a dozen points lower than the average score for all of Kirk-

SLURRY SEAL

Good for: **Neighborhoods**
 Cost per city block **\$1,600**
 Requires: **~70 PCI**

OVERLAY

Good for: **Arterials**
 Cost per city block: **\$17,000**
 Requires: **<60 PCI**



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land's 450 lane miles of residential and collector roads.

Minassian enters these 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 uses these forecasts to recommend a treatment plan for each road. On 127th Place Northeast, for example, the software recommended slurry seal in 2014. As Minassian discovered while inspecting the street in November 2014, however, that was a bad recommendation.

"It happens sometimes," Minassian says.

That's because the bi-annual survey is based on randomly selected sections of each street. The June 2013 survey of 127th Place Northeast, for example, was 100 feet long, less than half its total length.

Minassian suspects the 100-foot-long section of 127th Place did not include the section of transverse cracks and root protrusions that convinced him to scratch it off the list.

"Perhaps they didn't see those," Minassian says. "But you have to remember we do these surveys every four years. The surveys give us the Pavement Condition Index score at the time they were surveyed."

For 127th Place, that was June 2013.

"Some streets will deteriorate faster than the curves predict," Minassian continues. "And some will deteriorate slower. That's why we have to go out there and walk

70

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

George Minassian inspects a transverse crack on North Rose Hill’s 127th Place Northeast, near its intersection with Northeast 113th Street. Too many cracks and root protrusions convinced Kirkland’s streets engineer to exclude the cul de sac from slurry seal treatment this summer. However, the City will be treating this summer more than 40 other sections of neighborhood streets in the North Rose Hill neighborhood and 111 street sections in Kingsgate and North Juanita.



these roads.”

Nov. 7 was the day Minassian walked North Rose Hill. It was crisp, the first sunny day in a three-week streak of rain.

“This is the best time to look at these streets,” Minassian says. “While it’s still wet.” Minassian walks south from 127th Place onto Northeast 113th Street.

“You see here,” he says. “You see that it’s gray. This is the result of oxidization. It’s drying out. And anything that dries out will crack. We want to stop that.”

As he walks toward 132nd Avenue Northeast, Minassian notices a series of cracks, that cut across the street in a nearly straight line.

“Transverse cracks,” Minassian says. “Caused by variations in the temperature, which causes the street to stretch apart. With a little crack-sealing, though, they’ll be fine. This is the optimum time to do the slurry seal. But more than this, and it’d be too late.” ◀



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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 your neighbors are helping.

