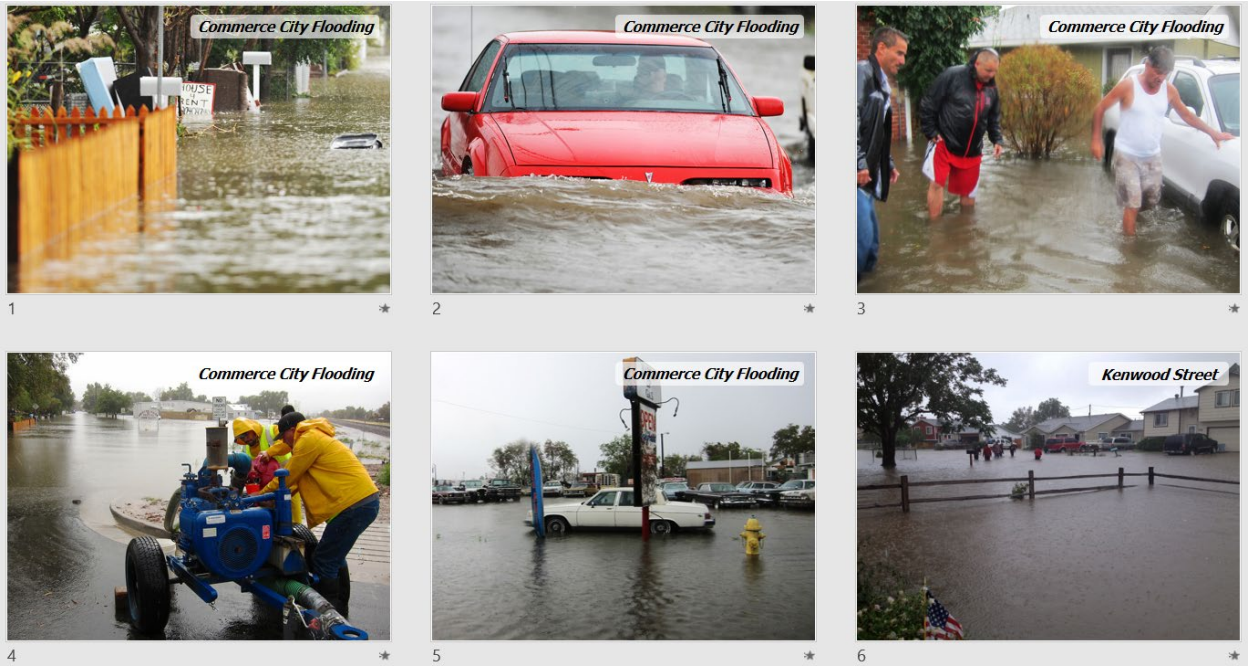
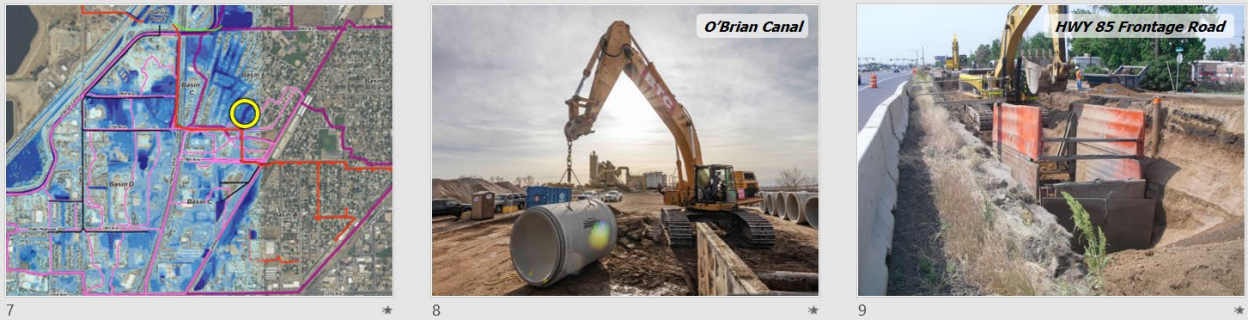
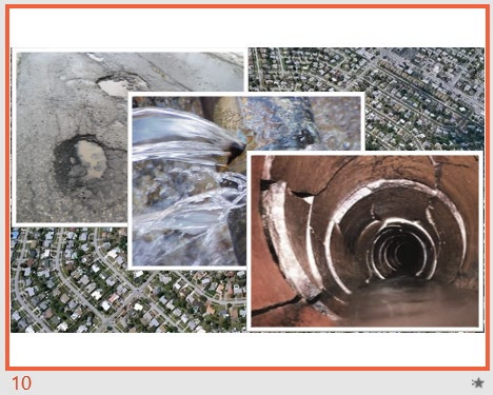


Floods are the deadliest and most costly natural disasters in the world. Wildfires, tornadoes, hurricanes, they get a lot of publicity, but it's the flooding that hurts the most people and does the most damage. Commerce City is no stranger to this - here are a few photos of flooding in Commerce City - homes, roads, businesses. I spoke with one of the residents in this picture, and her home was so prone to flooding she was afraid to leave town if rain was in the forecast. She'd lost too many cars from them getting flooded….in her driveway.



We built a project to help these folks (her block is highlighted in yellow), but it was costly. Over the course of three decades we've been methodically building a retrofit storm drain system in this part of the City – it's cost $10 to $15 million.

Taxpayer dollars were spent to deal with poor land planning and inferior drainage infrastructure. We're here to talk about modernizing Commerce City's approach to drainage infrastructure. In Commerce City as in most of the metro area, drainage infrastructure is largely built by developers.



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Developers may pay to install public infrastructure, but the local governments inherit it – pavement, sidewalks, water lines, sewer lines, parks…and of course drainage.

Our cities often develop in ways that are really inefficient from a long-term maintenance standpoint. When all of that shiny new infrastructure we've inherited falls apart, there may not be enough funding to repair it. Certain approaches to land use, and outdated approaches to drainage infrastructure can lead to needlessly expensive long term costs that will be borne by the local government. Taxpayers.

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In a really glaring example of both a problematic land use decision and an outdated piece of infrastructure here is Lena Gulch upstream of 6th Avenue near Colfax. This is in Lakewood. I use this example because I've previously done the math on it. To allow for more property to be developed, Lena Gulch was shoved into a rectangular concrete channel. The channel was built this way to allow for a few extra commercial buildings.

I looked into how much this property is worth, and with a little math figured out how much funding the District gets from this property each year (our funding comes from property taxes). We get around $270 in total revenue from this property, around $100 for maintenance. I looked at what it would cost to fully replace all of this concrete someday, and at today's prices it would take over 17,000 years for us to build up enough funding from this property to pay to replace the channel infrastructure.

Make no mistake – the channel was configured in this way to benefit this particular property. We've lost all ecological and recreational functions, and it will be a serious financial burden for the City of Lakewood someday when it falls apart.

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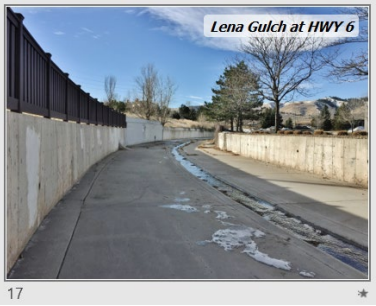
It's like with the I-70 project we all get the joy of driving through right now – the viaduct lasted 50 years and now needs to be replaced. This is a $1 Billion project. Hopefully Lena Gulch will last longer than that, hopefully.



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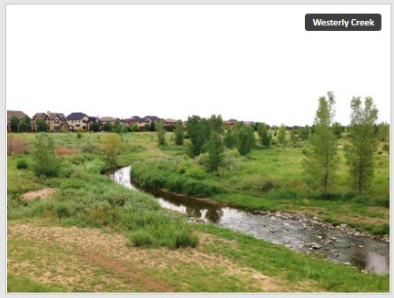
When we confine drainage like this, the water flows faster and deeper, putting more stress on the bed and banks, requiring us to import all of this concrete to keep the thing glued together. Think of how water speeds up on your garden hose when you stick your thumb over the end – the same principal applies here. You shrink the area, the water moves faster.



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From a land use standpoint and from a design standpoint – here is our modern approach to drainage infrastructure. When we give the stream plenty of room we don't need to import nearly as much rock and concrete. This is an engineered channel that used to sit under the runways of the old Stapleton Airport. It's infrastructure that looks like nature.

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This area withstood the 2013 flood – here's a sunny day photo on the same creek, then here is the same location during the 2013 flood. And here is the same location the very next day, and then back to this photo which was 8 months post flood. There were no airlift rescues here, no emergency pumping. Residents near here don't worry about floods in their driveways. And, there was zero maintenance post flood. This can be maintained with a weed wacker and a trash bag, because vegetation is the structure.

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This is a brief example of our modern approach to drainage infrastructure that your criteria updates will facilitate. With how quickly Commerce City is growing, this criteria update will protect residents from expensive taxpayer funded retrofits in the future.