Mikolajewski said they didn't know for sure if the area was a brown-field site, but they would be exploring that with MG&E. Poulson thanked staff for the presentation, and said the group would look forward to an update on this matter.

G.2. 38789 Metro: Audible Turn Signal/Alert System - TPC 06.10.15

Kamp introduced staff and provided some background about the issue.
● In 2011, Metro had a serious accident that sparked Metro to look at ways to minimize chances of having the type of accident they had at Lake Street and University Avenue and a left-hand turn maneuver.
● At the same time, they had been collecting an inventory of data of both more minor accidents and close calls that informed their decision-making in this process.
● Metro had had a press conference with the Mayor and the MPD in November 2014, when they talked about the issues they were seeing and showed some of the close calls and some of their concerns. (Video of this is available at MyMetro.com.)
● The item was placed on the agenda in response to Alder Zellers and others, who asked why Metro hadn't taken more formal input from the public, which was a good point.
● In terms of the data Metro had, it was limited. Only a handful of transit systems were beginning to move in this direction to deal with busy streets.
● Metro also wanted to discuss alternatives.
● So it made sense to have an informational meeting to start this discussion. Members had copies of the ordinance and some materials related to measurements and feedback in their packets (attached).

Metro Transit Service Manager Ann Gullickson, who oversaw operations and maintenance, made the following remarks.
● When Metro first started the project, they installed audible left-turn signals on three buses; and then tested them in their yard and in the community.
● Dave Rihn from the City Safety Office brought a decibel reader, and helped Metro learn how to set the readings and what to set them at, to evaluate what the experience would be before they put them in service in the public, to experiment with what the audible signals would sound like.
● They tested the signals on the three buses for a year. First they placed them on left-turn mirror, then on the left-front bumper, then the right-front bumper, and finally ended up putting them on the roof.
● They got feedback from drivers, who were listening to the audible signals for their entire driving shift; and they heard from customers and members of the community.
● When they ended up placing them on the roof and setting them at a decibel level that did not seem to be disruptive to people, they weren't getting the same feedback from the community, drivers and customers that they had initially. After that year of experimentation, they moved forward.
● The Measurements info provided the readings they got at different times over the multi-year period, to test the experience of riders at the bus stop. They wanted them to be aware at the bus stop that the bus was pulling in, so that they would step away from the curb.
● Along with riders and drivers, they tested the experience of residents along the routes, for which they used the City ordinance, to test the decibel level 50 feet away from the bus.

● The second page of the sheet provided a summary of customer feedback. The first year the alarms were in place on only three buses (out of 214 in the fleet), they received 32 items of customer feedback. They learned from that experience.
● Metro now had them on ~200 out of 214 buses, with a goal of completing installation by the end of the summer, going into the school year.

Members commented, and Gullickson, ACA John Strange and other staff responded to questions.
● (Kovich) Looking at the chart in the ordinance and the maximum dBA levels for residential, most of the levels tested seemed to be above the 65 dBA. Safety was very important to her, but she was trying to weigh the annoyance, the alarm fatigues people mentioned, and all of the factors people raised, so they could get it to a point where it was safe but didn't cause distress, and where it wasn't so loud that it was too loud.
● (Strange) The ordinance did set the level at 65 dBA, but it specifically exempted safety equipment; so for this particular device, the ordinance didn't apply. That didn't mean members couldn't inform their discussion with the ordinance, or determine what was reasonable for people on the street.
● (Kovich) The 65 dBA limit must have come from some place; somebody must have said this was the comfort level for residential areas. So even though the limit didn't apply from a safety standpoint, she was thinking about it in those terms.
● (Kamp) Some of the measurements were what maintenance used when six inches away from the signal. And the ordinance talked about measurements at 50 feet away from the vehicle and up four feet. Looking at the last box on the info sheet re: experience of residents, the sound levels were 67 and 68 dBA using the criteria of the ordinance for taking a measurement.
● (Gullickson) Another page of the ordinance discussed decibel levels at 50 feet away, which were the levels the signals were supposed fall within, for the sake of comparison to Metro's numbers. She couldn't explain why there were different numbers from page to page in the ordinance, and how they applied.
● (Strange) He couldn't speak to the science behind how the Council arrived at the numbers in the ordinance. When they adopted the ordinance, the Council talked about what the purpose was, and arrived at a number based on the science they referenced in the purpose. He wasn't an expert on decibels or that science.
● (Ahrens) As mentioned, the decibel level would be exempted because of safety. And he thought there would be a presentation as to whether this created a safe environment. He was looking for info that this was evidence-based, that putting the signals on buses had a demonstrable effect in terms of reducing pedestrian accidents. If they didn't have that evidence, then the basis for this being a safety device in some way, no longer applied. Then it was just an annoyance.
● (Ahrens) There were two measures for sound: one was decibel, which the ordinance reflected; and the other measure was frequency level. Based on the feedback they had received and in his own experience, it wasn't how loud the signal was, it was the frequency. It was a high "beep, beep, beep", which had a certain quality to it different from just a normal low frequency sound, which wouldn't wake people up in the morning.
● (Ahrens) There was quite a bit of evidence now that the beeping of trucks backing up, was no longer an effective measure on construction sites, in terms of being a warning because on large construction sites, there was always

beeping. So the sound didn't mean anything to people anymore. He hoped staff could address some of these points.

● (Kamp) Alder Zellers had likewise raised the question of what was the data on this. When they began project, they reviewed other transit systems who had experienced serious accidents, and were beginning to look at alternatives to the standard. While buses were generally loud, the hybrid-electric buses were quieter, which was kind of a mixed thing to keep in mind.

● (Kamp) General Operations Supervisor Phil Gadke's task was to reach out to other systems, which were beginning to collect data. In fact, Portland, OR had received a $300-400K grant to study this, because there was a lack of data. And yet, there were serious pedestrian and bicycle accidents in the transit industry. Metro staff felt they needed to do something and collect data, as opposed to waiting for another transit system or the industry to provide that data to them. It was a bit of a "Catch-22", and they decided to try this with that issue in mind.

● (Ahrens) The issue was that Metro had experienced a tragedy and felt they needed to do something. But the bottom line was that no transit system had collected data in a systematic fashion to show a demonstrated effect from using this particular alarm system.

● (Kamp) He said it was the tragedy, but it was also the growing awareness of how many close calls they had had. The insurance industry talked about how for every accident, there were dozens of close calls. Now that Metro had cameras they could review, they saw those close calls.

● (Kamp) Some of the transit systems were beginning to report out on this, so he would ask the Commission for some time to try to answer some of their questions if they could. He hesitated to say they would have scientific-based conclusions for them, but that's what they would be looking for.

● (Poulson) If and when the TPC revisited this issue, it might be helpful for them to see the video, which was very revealing about some of the close calls Metro encountered on nearly a daily basis.

● (Golden) Regarding the science behind how the Council set the decibel level in the ordinance, both he and Poulson were on the Council at the time, and the science was what got eleven votes. There was a lot of give and take; and it was political not scientific. He gave an analogy: When there were more than 25 kids crossing an intersection with a certain volume of traffic, the City placed a crossing guard there. When there were five kids crossing an intersection with a lower volume of traffic, those kids were on their own. He wondered about when staff programmed the signals and talked to the drivers, what were the instructions?

● (Gullickson) The alarm was connected in with the turn signal; so the drivers didn't actively turn it on/off. As soon as a turn signal was turned on, the audible signal was activated, and was on as long as the turn signal was on. The purpose was to alert people in the area that the bus was there, so if there were blind spots, they would be alerted that the bus was there. The alarm went off every time a turn signal was used, regardless of the number of people in the area or the location of the turn (side street or busy intersection).

● (Tolmie) As someone who relied heavily on his hearing, he greatly appreciated the device. As pointed out, the hybrid buses, esp. when there was additional traffic in the area, could sneak up on a person. He couldn't see the buses, so the audible signals to him were a blessing, esp. since the hybrids could be exceedingly quiet. Even standing too far out, a person could get hit by the mirrors, which actually happened once. And the odds of hearing a lower frequency alarm in heavy traffic (with semi's or trains) were very low. The higher pitch made it stand out.

● (Bergamini) When Metro was considering this device, which other systems in the state or country did they talk to?
● (Gullickson) No other systems in the state used alarms. Two systems using devices were Portland, OR, and Cleveland, OH.
● (Gadke) Des Moines, IA, and Richmond, VA, were using alarm systems also. It was difficult to find this info; but he had found news articles about Portland and Cleveland. Significantly, Cleveland had had a reduction in pedestrian fatality accidents. Other large communities were researching and thinking of implementing similar systems as well.
● (Poulson) Could the devices be turned down; was there a way to lessen the sound?
● (Gullickson) The first devices installed had a dial that could be set, which was periodically checked to make sure they were still set at a certain level and weren't changed when for example the roof of the bus went through the bus washer. The newest buses had a different device, which was adjustable also.
● Maintenance Manager Jeff Butler said the first 200 buses had an alarm with a variable resistor in the horn (the sound-emitting device), which was set at 95 dBA on the top of the bus when it was installed. The fifteen new buses had a different type of horn on them. When looking at the top of the bus, a person couldn't see the device; it was covered by a shield. This was a different noise-emitting device, because the other type of horn was not being made anymore. The new device didn't have a variable resistor to adjust; it had a window on it that could be closed (like a window in a house, if we didn't want air coming in). The device was adjusted by closing the window so it didn't emit as much sound.
● (Kamp) Looking at the Measurements with 50 feet/4 feet, one number showed the dBA from an alarm on an old bus and the other number was an alarm on a new bus = one decibel difference.
● (Butler) The alarms on all the 214 buses were set at 95 dBA; and were inspected before they left.
● (Bergamini) Weren't other changes made to the buses after the accident, such as the position of the mirrors? Also, what had the conversation with the insurance company been around this issue; was this something they suggested or had an opinion on?
● (Gullickson) Other modifications included changing the way the mirrors were attached. They now hang down from the roof and have clear space below the mirrors, which helped the drivers with visibility. Re: blind spots, the drivers still needed to use a "rock n roll" movement, and move in their seat to look around at they made turns, to improve their visibility.
● (Gullickson) She had been a member of Board at Transit Mutual Insurance Corp-WI (TMIC) for over a decade. No other transit systems in the state were doing this; they had not recommended this but they were very interested in what Metro's experience was. She saw a lot of accident data from around the state that came through on a quarterly basis, and the #1 accident cause was left turns. So anything that could be done to reduce accidents involving left turns was what they were seeking.
● (Kamp) The former Safety Director at TMIC, who had served on many regional and national panels on various safety issues, could be invited to a future meeting to help inform this discussion if people wished.
● (Ahrens) Looking up the issues in Portland, he found a headline read, "Portland Neighborhoods Complaining about New Pedestrian-Warning Technology". One difference was that both Portland and Cleveland used a woman's voice that broadcasted through a speaker repeating twice,

"Pedestrians, the bus is turning!" They had lots of complaints that they couldn't shut off the voice, which ran continuously as the bus drove through the neighborhood.

● (Kovich) As she looked through the issues and the comments that people got too used to hearing it, the alarm didn't afford a person the warning it should. When people heard it all the time, they didn't pay as much attention to it; they developed alarm fatigue. When Metro researched the effectiveness of this, she would be interested in thoughts about this as well. She didn't want to be relying on this system, and making the investment, and then have it lose its impact over time because people were ignoring it.

● (Kemble) Speaking of investment, what was the cost of the devices themselves, ongoing maintenance costs, software licensing costs. If the alarms were already installed as part of the new buses, was their cost integrated into the cost of the bus?

● (Gullickson) The cost of the alarms was $200/bus, with the total cost for all the buses between $40-50K. (Butler) As far as ongoing maintenance, they were really reliable and there was no software involved.

● (Golden) He asked staff if they could find out from the manufacturer if the devices could be modified retroactively by some exceptional method; or could a version of this device be created to have more user control over when the audible signal happened. Then if they wanted to, was there a phase besides on or off, or a way of doing something else, per the time of day, volume, etc. Would the manufacturers be able to produce this, and what would be the cost?

Poulson said the group would probably revisit this issue because of all the points that were raised; and suggested they listen to the people who had registered to speak about the audible signal program.

Julie Younkin, S. Baldwin Street, 53703, asked that the program be stopped (written statement attached): She and her young family lived where three routes traveled from morning to night. While initially regarded as a boon, the buses were now a continuous and alarming presence in their lives. She worked at home and was forced to hear the alarms every 10-20 minutes. Even staying in their house with fans/AC running, they couldn't block the sound. She wondered how their new baby would be able to sleep. With the few pedestrians in their neighborhood, she questioned the constant use of the alarms except perhaps at rush hour. She tried to find evidence for the efficacy of the alarms to reduce death/injury, but found none. Instead she found evidence that alarms didn't work for distracted walkers or those using cell phones. In fact, it seemed that people had negatively adapted to the alarms. Among other things, studies showed people adapted to repetitive alarms, and began to ignore them. She asked that the program be stopped until its efficacy could be proven; or to consider using them only during rush hour in busy downtown areas, where there was a proven need.

Michael Barrett, Sommers Avenue, 53704, opposed the noise, and wrote: Please keep our city audibly beautiful!

Lori Grapentine, Commonwealth Avenue, 53726, opposed the use of alarms: The sound was not a chirp; it was an alarm. She wished that Metro had done a better job of alerting people this topic was going to be on the agenda. She lived near the intersection Commonwealth and Allen, where the signal went off every time a bus turned, pulled over or simply sat at the stop sign. The

neighborhood was active, and buses had long traveled through it. But the new audible alarms were an unacceptable noise and she wanted them eliminated. She was sorry for the death of the person hit by a bus; and appreciated the difficulty faced by Metro, and their desire to have that never happen again. She didn't want anything like this to happen to her family or neighbors. But the detrimental impact of the program on everyone's lives and health was too great. What would happen if we put alarms on all vehicles, in order to prevent another pedestrian death? Imagine the cacophony of noise. She felt most people would find this unacceptable. It wasn't just about the decibel or the frequency, it was also about the quality of the noise.

Keith Callfas, Huxley Street, 53704, opposed the use of alarms: Callfas read from the ordinance, "Noise: any sound which annoys or disturbs humans or which causes or tends to cause an adverse psychological or physiological effect on humans" is banned; and further, "Signaling Devices. It shall be unlawful for any person to operate any horn or other audible signaling device on any motor vehicle except in an emergency." He lived directly across the street from the North Transfer Point, and was bombarded by the noise from 6 AM to 11 PM, constantly. The sound was like a French police horn; it penetrated into the house. He asked if the issue had been brought to the TPC in the first place. The quality of life in the city had been diminished. As an electrician, he knew that an on/off switch could be added, perhaps for use only during rush hour. If something wasn't done, he felt his only recourse would be to file a law suit.

Poulson said the TPC knew that the signals were being added to Metro's safety program, though the group wasn't aware of the level or duration and other factors.

Allison Smith, Langdon Street, 53703, opposed the alert system: She distributed emails from people on listservs regarding this issue, and made a statement (attached). She lived at Kennedy Manor, where the Route 81 bus passed every half hour until 2:30 AM weeknights and 3:30 AM on weekends. Metro's decision to install the system was based on good intentions; safety was important. However, there was no way to measure the effectiveness of the system. And we did know that many people were upset by the noise, which disrupted sleep, peace of mind, and business. It was a health and quality of life issue. Studies had shown that extraneous noise led to negative health consequences. Other solutions should be considered. The 2011 accident was the result of human error. Metro's safety record had been pretty good.

Melanie Foxcroft, Lakeland Avenue, 53704, opposed the program: When she first heard the noise, she asked did it work, had it been tested, what was the evidence for it? She did some research, and found eight places where it had been implemented on a test basis: Cleveland, New Jersey Transit, Washington Metro, Culver City, Boston, York Bus Canada, MTA Maryland and Portland, OR. Only Cleveland had finished their test period and had data. The alarms were part of several steps in a comprehensive safety program (inc. training, repositioning mirrors, etc.), to promote a safety culture. They hadn't teased out the effectiveness of the audible bus turn signals, which was embedded in this comprehensive program. Data showed ped/bike accidents had been reduced, but it wasn't clear which parts of the program were responsible for this. She felt there was no evidence to support the installation of the system we had

now. Since pedestrians had the legal right to be in crosswalk, what message was the alarm sending them (get out of the way)? It was as if we were asking pedestrians to take some action, whereas it should be the bus drivers who were taking some action. Listservs showed extensive opposition to this noise. Her neighborhood association would probably be registering their opposition. It seemed a lot of people couldn't tune the noise out. She asked that the experiment not be continued.

John Coleman, S. Dickinson Street, 53703, wrote in opposition: As a biker, I find the constant beeping from buses stressful and distracting. I view the use of the audible turn signal system as a safety hazard for me because of increased noise creating confusion while biking.

Karen Faster, Ohio Avenue, 53704, opposed the use of the audible turn signal alarm system: She expressed appreciation for the bus drivers. A Metro Transit customer since 1995, using the bus in the winter and sometimes in the summer, but lately not so much, just to avoid the turn signal alarm. Drivers and passengers could hear the alarm inside the bus. She submitted a log of her experiences with the alarm since December (attached). For those living along core routes, the alarm was non-stop. She found the alarm stressful, as a passenger, biker and pedestrian. She couldn't imagine it wasn't hurting businesses (streetside cafes or B&Bs). She urged that turn signal alarms not be installed anymore.

Representing Kennedy Manor and Fred Mohs Land Co., Kristi Solberg, Langdon Street, 53703, stated her opposition to the alarms and submitted a letter from Fred Mohs (attached), which offered an alternative to the signals. As manager of Kennedy Manor, she had received many complaints from her tenants. She had her office right there and conducted showings. She kept a bus schedule to avoid doing showings when the Route 81 was passing by, because it was annoying to have to explain it to people. Also, a lot of people didn't know what it meant. In Mohs letter, he stated that over the 50 years of doing business in the neighborhood, they had promoted the idea that good neighbors made good neighbors. He felt the alarm system was not the best solution, because it was annoying, damaging to peace and comfort, and not the most direct, effective solution to the problem, which was that the person might get in front of the bus without the driver seeing them. Mohs offered an alternative solution of blade signs. (See letter and picture attached.) By contrast, the audible alarm did not send a clear message. He urged that something like his alternative be implemented.

Brook Seeliger, Langdon Street, 53703, opposed the use of the bus alerts: She had lived downtown for many years, willingly living with traffic, buses and people. It was the responsibility of each person out in public to pay attention what they were doing, and what was going on around them. They did not to be babysat by an alarm system that was used indiscriminately everywhere, whether it was needed to not, whether there was a safety issue or not. She walked a lot downtown, inc. Lake and University, and felt that intersection had many safety issues that had nothing to do with buses, and that the police had failed to address. One phenomenon was "car creep": When there was a green light, cars and buses crept up behind pedestrians, waiting for the peds to finish crossing in order to zoom forward and make the light. This behavior could have been part of what happened in the 2011 accident. Pedestrians have the

green light at the same time as vehicles and they have the right of way; so to say that every intersection, every corner in all the neighborhoods had to have a turn signal, was disingenuous. It was causing a significant decline in the quality of life. Even living in a busy area, people should be able to go home and count on having respite from all the noise, and the stressors that brought on. She didn't want to have to listen to the piercing, discordant alarm signal until 2-3 AM in the morning. Most downtown properties were much closer than 50 feet from each other and the buses. She had frequently observed the alarms going off with no one around at all.

Robert Klebba, E. Gorham Street, 53703, opposed the alert system: He commended Metro for their efforts to improve safety after the event in 2011. Staff showed a sincere and quick response to that event. But the audible alarm system had failed. First, the droning of the alert system had become just part of the urban noise-scape. The system had become yet another contributing decibel to the noise pollution that everyone was trying hard to ignore. We had become inured, so it didn't have the effect it might have initially had. Second, the system detracted from the quality of life downtown, near bus stops or intersections around the city. He ran a B&B near the intersection of E. Gorham and Blount, and had six bus routes stopping right in front of their house. They heard the alert system as the buses were approaching from 30 meters away, while the bus was stopped, and as the bus was leaving. Repeat that scenario 10-11 times an hour. This was what they experienced in their front yard and in their house. The alert system had significantly affected their ability to provide a peaceful environment for guests. Metro had invested significant resources in the system. But with respect to investing in a better quality of life in our community, it was time to stop throwing good money after bad.

Former TPC member Tim Wong, Jackson Street, 53704, opposed the program: People had raised a lot of serious and good issues. While sensitive to many types of noise (power lawn mowers, car alarms), he didn't think this beep to be the absolute worst. He didn't know what they did, but he agreed with those who said the more we heard them, the more we knew a bus was in the vicinity. But that was all. He didn't think it would prevent any collisions or crashes. While in DC recently, he rode the buses extensively, and he didn't hear anything. So if DC had an alert system, Metro might want to see what they had. It was good that Metro was trying to respond to the pedestrian death, but he didn't think the system was effective. More noise pollution didn't do it. Metro should look into on/off buttons, because he heard alarms when no one was around.

District 2 Alder Ledell Zellers made the following remarks.
● She asked that for all the people who spoke so effectively, there were dozens of others who felt similarly.
● She had done some research and found that alarm fatigue was real. People started tuning (the sound) out. One of the reasons was that it didn't mean anything 99% of the time. It alerted people to no danger; it was just a noise.
● As several people had noted, the alarms caused confusion and stress; they started and looked for a danger that wasn't really there. This was detrimental; not positive.
● She was surprised to hear how many people were avoiding riding the bus because of this noise. She hated to hear this. We had an outstanding bus system and service. She thought highly of management and drivers of the bus

system.
● The single biggest reason for people moving out of the Isthmus (after expecting to stay for the long term), was noise. Among the many urban noises people complained about, complaints about the bus beeping were the most she had ever received. She was surprised by the level of outcry, and began to think about why.
● The sound was incessant, it was not effective, and it was the City doing it (vs. a neighbor's noise or traffic noise). People felt the City should not be imposing that kind of thing.
● If she thought it was effective in improving safety, she would not say this: It simply wasn't doing what we had so hoped and intended it to do.
● Perhaps there were other options. Metro had made some other improvements at the same time as they did this, which would clearly help, esp. reducing the blind spot, a big factor in the 2011 accident. Had she been in the crosswalk and heard a bus beeping, she probably wouldn't have reacted, because of being in the crosswalk and expecting to be seen.
● As a result, she leaned toward suspending the use of the alert system. She didn't think she would get to this point, but she now thought it was just not the answer. She added that Capitol Neighborhoods had put out a statement (attached).

District 6 Alder Marsha Rummel commented as follows.
● She found it interesting that the people for whom the alarm was intended, didn't hear it. But the people who lived next door to it, heard it incessantly. That was the thing she (as an alder) had found out about noise: It was like a creature we couldn't control.
● As mentioned, the measurements were taken from 50 feet away, but many residences were only 12 feet away from the street. So people were not getting 65 dBA; the sound level was almost as high as audible sound went, which was a dangerous level; 95 dBA was not safe for humans.
● The basic question was, how do we disable this and when?

Poulson noted that this was an informational item, and asked Metro to come back within a month or two, with some responses and further research, at which point it would be an action item.

Please note: A Roll Call is shown here to reflect that Ahrens left the meeting at this point in the proceedings.

Present: 6 - Rebecca Kemble; David E. Tolmie; Gary L. Poulson; Margaret Bergamini; Ann E. Kovich and Kenneth Golden

Excused: 4 - David Ahrens; Chris Schmidt; Wayne Bigelow and Kate D. Lloyd

H. UNFINISHED BUSINESS ITEMS

H.1. 38793 Metro: Action of Proposed Service Changes to Routes 6, 10, 11, 12, 25 and 59, to go into effect August 2015 - TPC 06.10.15

Transit Planning and Scheduling Manager Drew Beck and Transit Marketing and Customer Service Manager Mick Rusch, updated the group on the changes made to the proposal in response to public feedback. (See attached document.)
● Route 11 and 12: The original proposal was withdrawn. They might look at it in the future; it was in a couple neighborhood plans. They hadn't gotten the