

see "Over The Shoulder Topic Index" ongoing WORD file for meetings' topics

1 **CONFERENCE CALL MEETING # 15 – JANUARY 8, 2015**

2 Meeting Participants: 9 total / 5 agencies

3	Deschutes	Tom Shamberger	Chris Doty		
4	Jackson	None			
5	Marion	Don Newell	Jolynn Skyberg	Pete Delapp	Jolene Bray
6	Washington	Dave Schultz			
7	Pierce	Bryan Chappell			
8	Snohomish	None			
9	Spokane	Bob Keneally			
10	Yakima	None			
11	AOC	None			
12	CRAB	None			

14 **HOT TOPICS/UPDATES:**

15 Don said Cindy at **Snohomish County has asked that OTS push their site visit to 2016**. He said a lot
16 has been happening there and they are still appointing senior managers. Don said the group hasn't
17 done a site visit to Deschutes County, which the group had talked about for fall 2015. He asked the
18 group to think about this because there are key times to schedule.

19 Don said he spoke with Tom at Deschutes County and they are holding a **spray conference March 18-**
20 **19 at the Deschutes County Fairgrounds in Redmond**. Tom said it will offer 12-13 credit hours and
21 will focus on hands-on calibration and herbicide application in the ROW. He said the cost is \$75.00
22 per person and the agenda will be sent out next week. Don asked Tom to check on Washington
23 certification since Spokane County is interested in attending and recommended he discuss with Bob
24 at CRAB. Don said the MORE meeting in March will be moved to another date to accommodate this
25 training.

26 Don said in the coming months the group will discuss bridge maintenance and drainage. He said topics
27 not yet discussed that will come in the fall include traffic signals, signage, and traffic markings. He
28 said if anyone has a hot topic, it can be brought forward. Don said the bridge discussion will cover
29 programs and different types of bridges over a number of sessions and he recommended bringing
30 bridge staff to these meetings.

31 **Hot Topic 37: Organization Culture #4 - Customer Service** (for Road
32 Operations)

33 **Deschutes County:**

34 Chris said they have countywide "every time" customer service standards that are built into the road
35 department to respond quickly and accommodate customer service requests. He said he gets
36 phone calls, emails, and even occasionally texts. He said they're taught to listen with empathy,
37 apologize when necessary, and try to resolve issues.

38 Chris said their previous customer service software is expiring so they're starting to look at "PubWorks"
39 which has a module for customer service inquiries. He said they get inquiries on local access roads
40 and it's always a delicate explanation about why the county doesn't maintain a customer's property.

41 He said they're also trying to convey a level of service through policies such as their snow and ice plan
42 approved by their board of commissioners (BOC). He said they also have a policy about accepting
43 roads into the county system.

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44 Don asked if their BOC is happy with their customer service. Chris said very much so and it's probably
45 because of their culture of responding quickly and how they communicate to citizens and resolve
46 issues.

47 Tom said one of the plusses is having faith in other managers that when you refer a call to them they
48 will return that call in a timely manner. He said customer service is ingrained in their culture at
49 Deschutes County and they do it very well.

50 **Marion County:**

51 Don said he thinks Marion County Public Works (MCPW) has good customer service, but the
52 department started receiving criticisms from the BOC after they received complaints from citizens.
53 He said the bottom line was the department had to refresh and put a stronger emphasis on customer
54 service.

55 He said one thing implemented was a Customer Advocate Team (CAT) who looks at all customer
56 inquiries that come into the department to see that there's follow-through and resolution. He said
57 Jolynn Skyberg, the department's office manager, and Jolene Bray are both members of the CAT
58 team. Don said they have 190 miles of gravel road and receive complaints through dispatch.

59 Jolynn said dispatchers will refer that to the appropriate supervisor or manager to create a response.
60 She said if that person is out, staff will initiate a response within 24 hours letting the citizen know that
61 we're checking into it and the appropriate person will respond when they're back. She said there is a
62 dispatch log that has dates, times, names of callers, issues, who responded, and outcomes. Don
63 said he will sometimes receive an email assigning him an event with this information. Jolynn said it's
64 a standardized message to let CAT team know so they can enter info into a database and the benefit
65 is if the issue comes up again, the department has background and can share information. She said
66 if there is a delayed response from staff, follow-up emails are sent to ask how the issue was handled
67 or if it should be directed elsewhere. Jolynn said the department also receive positive feedback and
68 report that to the BOC and post on the monthly 'Above & Beyond' web page.

69 Don said the department also has a Facebook page that shares posts about road closures, bridge and
70 ferry closures, and other issues.

71 Don said he has 5 supervisors and tries to impress to them to take care of customer inquiries within 24
72 hours. If the customer provides a call back number in their phone or email message, supervisors will
73 call and offer to come to their location. He said that's usually very positive.

74 Pete said the public sometimes just needs to be educated. He said they used rollers on gravel roads
75 after it was graded and they would be rolled down tight, so people thought there wasn't enough rock.
76 He said he and crew leaders met with callers and explained what was done to the road, and they
77 seemed to understand that the road would last longer. He said when they receive calls, he will call if
78 he can, but if it's a drainage problem he will have staff go out there. He said it might be a week or
79 two before they actually take care of complaint but it helps the complainant to know they're being
80 listened to and that we're here to help.

81 Pete said he doesn't email customers himself, but leaves that to the CAT team. Don said he or admin
82 staff will respond to emails and they also review his emails before he responds. Jolynn said
83 everyone has their strengths and if there is someone better at emails or phone calls, you send the
84 better person to do that job. She said some supervisors do respond by email and do a great job.

85 **Washington County:**

86 Dave provided their "Maintenance Planning Section Customer Service Doctrine" document. He said
87 they needed to coordinate calls coming into the front office to ensure they got to right place at right
88 time and needed some point of contact for customer issues.

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89 He said they developed their customer service document with a focus on the following areas:
90 awareness, responsibility, cross training, business systems, mutual support, communication, and
91 action.

92 He said staff is trained to keep "REACH" values: reliability, efficiency, assistance, courtesy, and
93 honesty. He said they identified cross training to make sure staff understand how to do co-workers
94 jobs so they can cover basic areas. He said they have written procedures for techs and now have a
95 binder of paperwork with instructions.

96 Don said if the document(s) is not too large he would like to share on the OTS site. Dave said if
97 customers have questions about a particular area, staff can go into a database and give an
98 approximate answer of when work will be done. He said people receive feedback from customers on
99 what is or isn't working and can share that with their supervisor.

100 Dave said they also highlight communication and focus on the "Five C's of Communication" (clear,
101 concise, courteous, correct, and complete). He said staff is trained to listen with empathy and try to
102 separate emotion from the issue. He said if they're able to garner trust they are more able to help.

103 Dave said this customer service document was for the Planning section but they created a new
104 document that works across the network of people either involved in or benefitting from a particular
105 service. Dave said they have a service request system and if an issue is submitted and not resolved
106 in 7 days, they have a requirement to contact the customer and let them know the status, and then
107 again if not completed in 30 days. He said they keep the customer informed of the status of the
108 request. He said with planning permits they have a 10 day cycle to complete and issue but they
109 usually do them quicker depending on the complexity.

110 He said they are now using email with ODOT to issue transportation permits and have 4 day cycle.
111 Dave asked Deschutes County about their "Every time" standard. Chris said this is on their website
112 and he will forward. He said there is a multipage description of how they need to deliver their
113 customer service similar to Washington County's document. Don said they will be posted on the
114 OTS website in the X-Public Outreach & Customer Service folder when received.

115 **Pierce County:**

116 Bryan said they receive customer inquiries through a **Request For Action (RFA) link**. He said it goes
117 directly to the specific division and if in wrong location, the RFA will be sent to the correct division.
118 He said they also have an internal RFA for issues such as water over a roadway.

119 He said if they receive a phone call, they go downstairs and staff enters that info (request type, status,
120 tickle date, etc.). He said this way if they get calls about problems with beavers in culverts they have
121 a way to track and recheck.

122 Bryan said they have a **Facebook page** that takes comments (positive and negative) from citizens. He
123 said they received negative Facebook comments when five vehicles couldn't make a ferry because
124 the county overloaded it with 12 trucks with trailers hauling chip rock to an island. He said they're
125 now adjusting schedules due to these comments and if it looks like a ferry is full they will hold back
126 county vehicles. He said they also receive email feedback and these go to the public information
127 specialist who distributes them to the appropriate person. Bryan said all communications whether on
128 the phone, in person or by email are recorded in an RFA.

129 Bryan said when they have their **weekly meetings** they look at maintenance areas and if anything is
130 standing out in RFA's, they usually get corrected in these meetings. He said when doing chip seal
131 on the island they ran a similar amount of vehicles but put up **reader boards and sent out flyers** to
132 inform citizens and be proactive and received no complaints. He said they receive different types of
133 inquiries (requests for maintenance, questions about ownership, drainage, potholes, etc.) and will
134 call citizens if they request a phone call. He said if they don't but provide a phone number, staff will
135 still call. Bryan said they have a 24 hour response to fix potholes. Dave (Washington Co.) asked if
136 they notify adjacent property owners when they are doing chip/slurry seal by mail or other means.

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137 Bryan said they have door hangers they put in affected neighborhoods, and if it's a bigger development
138 they have engineering techs to help neighbors find their way around when work being done. He said
139 they have a web based format that emergency management uses where they can record water over
140 roadway, closed roads, roads with restricted access, and that's all on a map public can see.

141 Bryan said that's on the county website and is accessible through staff's iPads so they can update while
142 they're in the field. Bryan said they have also done YouTube videos and will put links on the door
143 hangers to the videos to educate them about upcoming work. Don said these videos are really well
144 done and the links are also on the OTS website.

145 **Spokane County:**

146 Bob said organizations can't stop improving on customer service and he's starting new initiatives with
147 that in mind. He said one of his four pillars is customer service and he can share what they're doing
148 for the OTS website. He said he wanted to hear what other counties are doing to see if they can
149 incorporate into their initiatives.

150 He said the county had the opportunity to ask a consultant with a company that does HR training to
151 develop customer service training. He said he can share that syllabus. Bob said in the past they
152 didn't want a lot of communication with customers because it led to more questions and didn't
153 embrace the media as it should. He said now their thinking has shifted and they've tried to pursue
154 and use to their benefit.

155 He said the county has been on TV four times since this fall and have done a ride-along with local
156 reporters which opened their eyes about the gravel roads in the county. Bob said they have flat
157 screens in all the shops that have a running banner with updates. He said they are in the middle of a
158 reorganization, which has a lot of employees on edge and he tries to keep them updated with this
159 site.

160 Bob said they started using Facebook and Twitter about six months ago. He said a lot of times they'll
161 shut a road because of chip seal or other work, and although they put out signs, they don't tell
162 people what they're doing. He said they're going to get big reader boards and have website that has
163 info about what they're doing. Bob said they've provided customer service training to managers and
164 lead positions.

165
166 Don said he wants to focus on responsiveness and for a customer to see crews respond if they make a
167 phone call. Don said he has shared Marion County Public Works' mission and vision statement and
168 values in the X-Public Outreach & Customer Service folder also.

169
170 **** End of Meeting #15 ****
171

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172 **CONFERENCE CALL MEETING # 16 – FEBRUARY 5, 2015**

173 Meeting Participants: 16 total / 5 agencies

174	Deschutes	Chris Doty	Trina Wilson		
175	Jackson	None			
176	Marion	Don Newell	Mike Shepard	Ryan Engel	Jolene Bray
177	Washington	Keith Lewis	Dave Schultz	Dan Henry	Ron Del Rosario
178	Pierce	Bryan Chappell	Gary Admansen	Kendall Willis	Gary Grindley
179	Snohomish	None			
180	Spokane	Randy Moran	Tom Hardee		
181	Yakima	None			
182	AOC	None			
183	CRAB	None			

184

185 **HOT TOPICS/UPDATES:**

186 Don said the next meeting will also cover bridge maintenance topics, and April and May will cover
187 drainage issues/topics. He said June 4th will be the last conference call before the fall.

188 **Topic 38: Bridge Maintenance: 1/6 – Agencies' Programs and**
189 **Inventories (Types): Budget Personnel / Training / Other Agencies Support**
190 **(ODOT inspections)**

191 **Deschutes County:**

192 Chris said Deschutes County is located in the high desert and doesn't have a lot of bridges compared to
193 other counties. He said many of the bridges they do have cross irrigation canals with a smaller
194 number crossing the Deschutes River. He said they have **59 bridges that are all different types**, but
195 no covered bridges.

196 Chris said they **don't have a specialty bridge crew**; they use road crew members as needed. He said
197 they will be doing bridge work in the canals during the low water months, usually October to April.

198 Don asked if there are any large bridges in their system. Trina said the tallest bridge is only 25', the
199 longest is 243', and there are ten over 100' in length.

200 Chris said their budget is fairly nominal unless they need a specific significant repair and then they will
201 rob from the capital program. He said a lot of what they do is budget capital replacement through the
202 state grant programs or land grants programs, and then they provide match.

203 He said they also have pretty nominal equipment, including cranes but no scaffolding systems. He said
204 they have one certified welder. Chris said they don't have a lot of active training but maintenance is
205 pretty straight forward including replacing decking and railing. He said anything more high tech they
206 will contract and rely on the state to inspect their more significant bridges.

207 He said they haven't had a weighmaster in Deschutes Co. in a number of years which is a concern and
208 is frequently discussed.

209 Don asked if there was anything Chris would do differently or change if money was no object. Chris
210 said **they react too much and aren't proactive enough in maintenance issues**, so that's a point
211 of emphasis moving forward in their budgeting.

212 He said a lot of their bridges are small, spanning canals, and have low traffic volume so they're not as
213 focused or disciplined in staying on inventory as they should.

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214 Marion County:

215 Mike said Marion County has **140 bridges in their inventory**. He said 70 were of timber construction,
216 35 concrete, and 35 a combination of concrete and steel and the average bridge age is 45 years old.
217 He said they have **one covered bridge**.

218 Mike said the **yearly Bridge and Ferry budget is \$750,000**, and includes two crew leaders, five
219 medium equipment operators, five ferry operators, and one toll-taker. He said they have a crane,
220 boom truck, hanging scaffolding, pile jacks, and other equipment. He said they have two certified
221 crane operators, but not certified welders, on the crew. He said when needed, they use a fleet
222 fabricator who is a certified welder.

223 Don said ODOT oversees all inspections on bridges over 20' in Oregon and tracks the results in a
224 database. He said it usually takes ODOT a couple weeks to inspect Marion County's bridges. Don
225 said bridge replacement and repair money is competitive on a statewide basis, not by agency.

226 Don said they found a refurbished trailer-mounted platform that usually sells for \$250,000 brand new.
227 He said crews aren't able to get under bridges well and this will allow them to work more safely and
228 ergonomically, and help them get closer to bridge components.

229 Don said the timber bridges were built in 1930's and have exceeded their life. He said they have a
230 program to change out the components to steel on these bridges but are definitely not keeping up
231 with the demand of the system. He said Marion County doesn't have a program similar to Pierce
232 County that replaces timber bridges with concrete structures.

233 Mike said in the next three years Marion County is scheduled to replace three bridges but only one is
234 timber, with the others being a super structure and an old concrete bridge that has aged. He said in
235 the last 4-5 years they've gotten aggressive with timber components but prefer to take care of and
236 remove from the maintenance list.

237 Don said **one large steel bridge is the Willamette crossing bridge**, which is 2200' total. He said it has
238 received some state money and they are able to keep it up.

239 He said another **timber bridge goes across Labish and is 1800' with 85 timber spans**. He said they
240 did a maintenance application a couple years ago and didn't use the proper wood so now they'll
241 have to pull and re-deck whole bridge. Ryan said that bridge alone takes a lot of time and effort. He
242 said they are trying to improve timber bridge preservation. He said they are using borate rods to spot
243 treat, which is better at field treating cuts, and not try to replace as many components in future.

244 Don said Mike is also spending about 7 weeks a year replacing electrical wires and dredging for ferries.
245 He said Mike's crew also takes care of large vertical structures, such as large signs installed for the
246 road division.

247 Washington County:

248 Keith said he used to do bridge inspections for Washington County but more recently they have
249 contracted out inspections for bridges over 20' but still do in-house inspections on shorter bridges.
250 He said they have **186 bridges total and timber bridges used to make up 40% of their inventory** but
251 they've whittled that down. He said they're the biggest headache for maintenance purposes.

252 He said they have very little contracted maintenance work but bridge replacements are contracted.
253 Keith said there are **6 employees in the bridge section**, which has an annual budget of \$700,000-
254 \$800,000, and they have no seasonal hiring planned.

255 Keith said they have one certified crane operator on their crew but have no certified welders. He said
256 they don't find it to be cost effective to have a certified welder on the crew, but contract that out if
257 necessary. He said their typical work window is mid-July through the end of September and they try
258 to do all in-water work during that time. Keith said they have one flat bed crane truck, a utility box
259 F450, and pile jacks. He said guard rail repair is the bulk of what they do but they also do stringer
260 and cap replacement.

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261 Keith said they have no covered bridges or steel bridges and the majority of their bridges are concrete
262 with a smaller number in timber.

263 Keith said their bridge crew doesn't have mobile scaffolds and have borrowed trailer mounted scaffolds
264 from ODOT in the past.

265 He said of the 186 bridges in their inventory, **138 have some sort of maintenance need, 99 are**
266 **structurally obsolete, and 10 are weight limited.** Keith said the current estimated maintenance
267 need is \$1.19 million and replacement cost is \$15 million.

268 He said they budgeted \$250,000 for maintenance for 2014-15 and are leaving the rest as deferred
269 maintenance. He said one bridge is on a collector with vertical and horizontal curves in an urban
270 area, with a pedestrian sidewalk cantilevered on the side. He said the idea was it would be replaced
271 in 10 years but it is still in use with no plan to replace at this time.

272 **Pierce County:**

273 Gary A. said Pierce County has **200 bridges with ten over 300 feet.** He said they are responsible for
274 their own inspections and also do for some cities in the county. He said all are monitored on a
275 statewide program where they are rated on 1-100 scale and submitted to the feds.

276 Gary G. said most of what they do is minor repair work with a lot of guard rail repair.

277 He said **maintenance is about \$50,000 a year** and most of the wood repair is done in house. He said
278 they rebuilt a large stringer last year and are doing same along with a deck on small bridge this year.

279 Gary G. said they have a bridge truck along with welders and torches and a 65' crane with a basket so
280 they can reach under bridge. He said they have **two certified crane operators** and use a two person
281 crew all the time with flaggers as needed.

282 He said they have an equipment crew **who has certified welders** and they come out and work with
283 bridge crew as needed. Gary A. said they are replacing timber bridges with concrete bridges. Gary
284 A. said their replacement money is coming from state BRAC funding.

285 Gary A. said they would like to continue to replace structurally deficient and obsolete bridges. He said
286 they will apply for BRAC funding as it becomes available.

287 Gary G. said they do **in-house inspections and use the bridge truck with a basket** which allows them to
288 do any under bridge maintenance they need to do. He said it's mostly used for guardrail repair so
289 they can hang off the side. Don asked if they can send photos of that truck. Gary G. said they try to
290 respond to all maintenance but if it's beyond their ability they contract out.

291 **Spokane County:**

292 Tom said Spokane County has **148 bridges.** He said their 2015 **budget is \$197,000** and includes bridge
293 inspection of superstructure and substructure, and rip rap replacement. He said guardrail
294 replacement is a separate budget.

295 Tom said they have two bridge inspectors and two bridge engineers that do inspections and then give a
296 punch list to the bridge crew. He said they have **five employees on the bridge crew with one**
297 **supervisor,** including two certified crane operators. He said they don't have any certified welders
298 and use the central shop welder, if needed.

299 He said training is done in-house. He said they've done a couple pile rehabs with CMP pipe because of
300 exposed rot above the water line and have replaced some wooden bridges with multi-plate structures
301 that seem to be working well. Tom said they have a **28-foot crane** but don't have a UBIT truck, so
302 that work is contracted out.

303 He said they do a lot of guard rail and facilities maintenance, and have a couple wooden bridges due for
304 replacement this year. He said all new bridges are pre-stressed concrete.

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305 Tom said they have 28 timber bridges and the longest two are 72' and both are due for replacement this
306 year with pre-stressed concrete structures.
307 He said they have a lot of small bridges only 24' wide covering drainages in farming areas in the county.
308 He said when they were put up they were sufficient for traffic but the bigger farm equipment now
309 knocks off markers.
310 Tom said they will try to build asphalt approaches about 60 feet out to help keep gravel from
311 migrating up on the wooden deck surfaces. He said lately they've worked on stringers and 35' deck
312 panels, which seems to be working well. He said most of the bridges aren't tall enough to need a
313 UBIT truck underneath and if it is needed, they contract out.

Topic 39: Bridge Maintenance: 2/6 – Timber Bridges

315 Deschutes County:

316 Chris said they have 17 timber bridges.
317 He said their maintenance activities are mostly deck replacement, bridge runners, and guard rails but
318 they are replacing a deck every year.
319 He said they've been doing fiberglass wraps on concrete piles.
320 Don asked if they put down membranes. Trina said they put new 2x16 running boards down on the
321 wheel tracks. Chris said this was sufficient with the low volume on these bridges.

322 Marion County:

323 Mike said Marion County has 70 all timber bridges and 30-35 have timber components.
324 He said routine maintenance includes seasonal cleaning by power washing to clean drains and rails.
325 He said all bridges are on a paint cycle and timber bridges are done one a three year rotation and
326 concrete bridges every five years.
327 Mike said drift removal is big for Marion County and they use a lattice boom crane to remove. He said
328 timber bridges have a ten year fumigation cycle, which is contracted out.
329 He said they just recently started spot cleaning when they get inspection reports. He said if there's a
330 small rot pocket or if it doesn't span very long, they will treat with borate rods and seal them up. He
331 said he is interested to see if this will arrest the rot.
332 He said they have a lot of caps and pile that are marked down due to checks or cracks but don't have
333 rot so they've also treated them with borate liquid before sealing to keep out bugs. He said if there
334 are any cuts they use butyl acrylate to seal.
335 Mike said they've started a resurfacing program where they try to grind off old overlays on 2-4 bridges a
336 year. He said some have 8-10 inches of asphalt they have to grind off and then do deck repairs. He
337 said they did one last year to a 25 foot span bridge with a laminated deck so they came up with a
338 tensioning system above and below the deck that they tensioned with jacks and squeezed that deck
339 back together about 7 inches.
340 He said they are actively trying to repair wood decks and use 1 ½" leveling course, a waterproof
341 membrane, and 2-2 ½" AC deck on a bridge. He said they also do an herbicide application for
342 vegetation control as needed and go out frequently with weed whackers to clear shrubbery and
343 brushes that holds moisture to bridge.
344 Ryan said the addition of hydraulic jack system has been great for lifting capacity and safety. He said
345 being to get the jacks set up and do a test lift without personnel nearby has been phenomenal and
346 has made efforts considerably safer.

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347 Don said new on the horizon is the implementation of **corrections crews** to do surface bridge painting.
348 He said they have to maintain an urban drainage district and corrections crews already performs
349 those duties as well as pavement preservation, so he hope to add a few corrections folks to do the
350 painting so operators can do other things.

351 Keith (WA Co) asked if the **purpose of painting** was for protection or aesthetics. Mike said a little of both
352 because it seals up the wood and concrete on the rail system and keeps off algae and moss. Ryan
353 said a freshly painted bridge also makes it more visible to oncoming vehicles.

354 **Washington County:**

355 Keith said they decided years ago to **forgo any painting from the perspective of labor, costs, and**
356 **environmental issues**, and wooden structures are only treated with a natural wood preservative.

357 He said some rehab projects they've done include re-decking, outside stringer replacement, pile slices,
358 and cap splices, and have pile jacks to lift bridges off caps. He said they've found that cap splices
359 aren't cost effective and now prefer to replace the bridge while they have it up.

360 Keith said they also have a lot of **post replacements** and maybe that's because they don't paint and
361 they're exposed to the weather. He said he would be interested to see the cost penciled out painting
362 vs. not painting.

363 Keith said when he came on board they had 7 bridges that were in danger of closing because of
364 disrepair. He said one they're still dealing with in an urban area close to a school and is structurally
365 obsolete. Keith said they've done a lot of bridge preservation and replacements.

366 He said for the past 15 years they've had one bridge crew to do pressure washing, cleaning, and
367 whittling down wooden structures.

368 He said **fumigation is few and far between and done on an as-needed basis**.

369 He said they inherited from the state one bridge in the Forest Grove area that they rebuilt. He said there
370 were a lot of pile splices, life spans on stringers that made it susceptible to bending loads, and beefed
371 up timber structure using a nail laminated deck. He said they're now seeing 15 years later that it's
372 still susceptible to cracking and a constant maintenance problem.

373 He said typically when they're re-decking they will **put down paving fabric**. He said they've gone
374 through most of their inventory, removed dead load and got down 2" AC.

375 Keith said they have a couple of structural engineers in operations and more in engineering.

376 **Pierce County:**

377 Gary A. said Pierce County has **11 timber bridges**.

378 He said Washington State is working with Fish and Wildlife to get a statewide permit to do maintenance.
379 He said now they need to do **dry cleaning** and **then pressure washing**, and can't do it near the
380 waterway.

381 Gary G. said they don't do any painting on their wood bridges and haven't done any post treatments. He
382 said they replace the rotten stuff as it occurs.

383 He said they only have 3 bridges with a wood exposed deck and the rest are asphalt pavement going
384 across. Gary G. said if they have issues with a deck underneath asphalt rotting out and they will do
385 temp deck replacement, but they try to it keep to a minimal.

386 He said if it's time for a wood deck to get rebuilt, they'll replace outside stringers so they have a full
387 refurbish. He said they inspect regularly and as maintenance issues arise they write up and send
388 out.

389 Gary A. said they have professional engineers but no structural engineers on staff.

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390 **Spokane County:**

391 Tom said Spokane County has 49 timber bridges with 11 over 20 feet and 18 less than 20 feet.
392 He said in the past they've talked about overlays on bridges and tried AC on them and it accelerated rot
393 on the deck. He said they had to redo the deck earlier and now don't do any kind of AC overlay.
394 Tom said they've tried Petromat or GeoTac, a rubber membrane that functions sort of like tar paper
395 when roofing a house by keeping water on top. Tom said they've had a problem with one bridge in
396 the winter when during snow removal the snow plow operators sometimes forgot to pick up the plow
397 and gouged the membrane.
398 He said their seasonal maintenance includes cleaning caps and are trying to get asphalt approaches
399 because gravel is hard on a deck.
400 He said they went to glulams, which can lag down but usually don't if the substructure is good. He said
401 glulams are easy to install and they will be going with them in the future. He said they're 30" wide
402 and can use the truck to put in place. He said even with glulams they get some tracking and are
403 looking for some sort of preservative that's okay with fish and wildlife.
404 He said they have one bridge with a carpenter ant problem and that was contracted out. He said their
405 bridge crew does all their brushing by hand with weed trimmers. He said they don't use herbicides
406 on any gravel roads because of the problem with it binding up with dust particles and drifting over to
407 adjoining fields.
408 He said they're trying to work towards getting the wooden structures replaced with concrete structures.
409 They said they have three structural engineers.
410 Keith (Washington) said it sounds like the superstructure is probably what's causing the reflective
411 cracking when overlays are put down. He said he's dealt with this before and would be leery of only
412 having Petromat on the deck. Don (Marion) said tomorrow's maintenance crews will have a hard
413 time milling off the membrane Marion County is putting down now. Ryan (Marion) said they put down
414 a leveling course of asphalt, then the membrane, and then surface. Don will put together a file he will
415 share with the group.
416
417 Don reminded the group that Deschutes County is holding a Herbicide class in February and has
418 received approval for Washington credits also. He said it's being held at their fairgrounds with a cost
419 of only \$75 and may be good value for herbicide staff. Chris (Deschutes) said there will be
420 opportunities to calibrate equipment and they will also go through county trucks with attendees.

421 **** End of Meeting #16 ****

422
423
424

see "Over The Shoulder Topic Index" ongoing WORD file for meetings' topics

425 **CONFERENCE CALL MEETING # 17 – MARCH 5, 2015**

426 Meeting Participants: 14 total / 6 agencies

427	Deschutes	Tom Shamberger			
428	Jackson	None			
429	Marion	Don Newell	Mike Shepard	Ryan Engel	Jolene Bray
430	Washington	Keith Lewis	Dave Schultz		
431	Pierce	Bryan Chappell	Gary Admansen	Kendall Willis	Gary Grindley
432	Snohomish	None			
433	Spokane	Randy Moran	Mike Duke		
434	Yakima	None			
435	AOC	None			
436	CRAB	Bob Moorhead			

437

438 **HOT TOPICS/UPDATES:**

439 Don said the April and May OTS meetings will cover drainage issues/topics and the June meeting will
440 be the last conference call before September.

441 Don said there are no site planned for the spring and there may not be any this year.

442 He said the National Association of Counties (NACo) is soliciting counties to submit their innovative
443 projects for an Achievement Award and he's going to put forward the 'Over The Shoulder' group. He
444 said anyone with information or questions can contact him or visit the NACo website
445 (<http://www.naco.org/programs/recognition/Pages/Achievement-Awards.aspx>). He said if OTS
446 receives an award, it be shared with all participating counties. Don said submissions are due by the
447 end of April 10 and he will share progress reports with the group.

448 Tom said he received word that they are eligible for 13 credits from Washington State for the "Cascade
449 East Vegetation Management Conference," a herbicide spray training, being held on March 18 and
450 19 in Deschutes County. He said there is still room if anyone is interested in attending. Tom
451 encouraged people to bring their own spray truck or spray back packs because they will be
452 calibrating equipment and said they have a lot of room including covered areas for equipment.

453

454 **Topic 40: Bridge Maintenance: 3/6 – Concrete (w/ Steel Components)**
455 **Bridges**

456 **Deschutes County:**

457 Tom said they have **nine concrete bridges** and almost all cross the Deschutes River. He said most
458 are new and they have not had to do much maintenance. He said ODOT does the bridge
459 inspections and they don't have a dedicated bridge crew but do have staff with bridge experience.

460 Tom said one of their biggest repairs in bridges over canals is spalling and they've been doing grouting
461 and concrete repair.

462 He said they have one bridge on Tumalo Road that crosses over the Deschutes River that gets ice
463 jams, which is hard on concrete so they've done repair on the piers.

464 He said they have a historic **single lane bridge** that is 110 years old that is getting deterioration on the
465 concrete and they are doing repairs to bring it up to standard. He said it isn't on the historic register
466 so they can remove, but he prefers not to.

see "Over The Shoulder Topic Index" ongoing WORD file for meetings' topics

467 **Marion County:**

468 Mike said Marion County has a lot of inventory with **35 concrete structures** and **another 35 that are a**
469 **combination of concrete, steel, and timber.**

470 He said for maintenance they paint concrete rail and curb lines to be aesthetically pleasing and seal
471 concrete. He said major maintenance includes concrete bridges spall repairs and accessibility to
472 spalling spots underneath. He said another is replacing timber piles, caps, and components with
473 steel.

474 He said he is looking for suggestions on **epoxy overlays** and looking to ODOT for information. Ryan
475 said one thing they'd like to know more about is epoxy for injection repairs for cracking. He's seen it
476 used for spalling and patches, but hasn't done much and wants to look into for the future. Don said if
477 anyone has done to please share.

478 **Washington County:**

479 Keith said **60% - 70% of Washington County bridges are concrete structures.** He said some are
480 very old concrete structures and they made a concerted effort from the 1980s to 2000s to replace
481 timber bridges with concrete structures through their capital improvement program.

482 He said they have been incorporating wider widths and are removing obsolete bridges.

483 Keith said they used to have 2 bridge crews but now have one but they are not dedicated to bridge work
484 because they're finding they don't have need they used to have with bridges.

485 He said of the 186 bridges about 150 are NBIS length or longer so they are inspected by ODOT, but
486 non-NBIS bridges are inspected internally. He said they've had maintenance issues with concrete
487 superstructures with timber piles and components.

488 He said they've tried to get away from using timber components and use steel components and caps in
489 temporary repairs.

490 He said they've dealt with spalling, particularly with bridges built in the 1960s and 70s, with steel piles
491 and concrete caps having some wearing from impact loads from trucks. He said some are very
492 tricky over water and repairs are an issue.

493 Dave said they're using a **crack-sealer to seal bridge decks.** Ryan (Marion) asked with regards to
494 installing steel caps over timber piles how do they fasten the cap to the piles or if they're relying on
495 the bridge to hold.

496 Keith said they're dealing with **timber caps** on timber piles **by using a steel strap to hold it.**

497 **Pierce County:**

498 Gary A. said **120 NBIS bridges that are 200 feet long and a couple that are longer.**

499 Gary G. said they do basic concrete maintenance on concrete bridges.

500 Gary A. said they do spall patching on decks, and have a truck with a 55 foot crane that can curl up
501 under a bridge to do any underneath spalling and guardrail repairs.

502 He said they do sidewalk cleaning, pressure washing, graffiti removal, and painting over, and drainage
503 scuppers are cleaned constantly. Keith (Washington) asked when doing cleaning repairs if they do
504 anything special to keep patch material out of water. Gary G. said they work out of a man bucket and
505 tie a piece of plastic from the column to the man bucket so they don't have to worry about anything
506 falling into water.

507 Keith said his crew has **used diaper with a tarp to catch falling debris** but they don't have similar
508 bucket truck. Gary G. said they used to do the same before the truck but can now accomplish more
509 in a day. Tom (Deschutes) asked if they see any negative impacts on concrete bridges from the use
510 of salt brine. They said they are not seeing any negative affects to concrete.

see **"Over The Shoulder Topic Index"** ongoing WORD file for meetings' topics

511 Tom said on one concrete structure, it looks like they're losing the top and getting a rounding affect so
512 they're losing several inches of concrete, and doesn't know if it's accumulation of mag or aging and
513 wanted to know if they're seeing with salt brine.

514 Gary G. said they're not seeing in maintenance but are seeing in some older bridges. He said when
515 capped it looks like newer, lighter concrete was used. Tom said that's what they're seeing; it looks
516 like a mixed design. Gary A. said they're seeing some crumbling on top. Gary G. said they're seeing
517 on bridges before using salt brine so it's more of a concrete issue.

518 **Spokane County:**

519 Mike said they have little over 160 bridges and all but **about 60 are MBIS and 40 are concrete.**

520 He said their maintenance is related to spalling on the deck and compression.

521 He said their bridge crew has other duties also but they try to keep busy with maintenance activities,
522 such as deck rehab – sealing, joint repairs, and other routine maintenance.

523

524 **Topic 41: Bridge Maintenance: 4/6 – Steel and Other Bridges**

525 **Deschutes County:**

526 Tom said they have **only one steel bridge** and it's a historic bridge with a weight limit crossing over the
527 Deschutes River. He said they are replacing it this year with a new concrete structure.

528 He said as far as painting, they have painted Cor-Ten guardrails, so they replace guard rails damaged
529 in accidents. He said they hire a sweeper from one of their cities to sweep bridges since they don't
530 have the equipment.

531 He said one of the biggest maintenance issues is the accumulation of **cinders under guardrails**. He said
532 they **don't have issues with birds**.

533 Keith (Washington) asked Tom how they cleaned under the guardrails. Tom said they push away with a
534 Bobcat, if possible, to keep impact on traffic minimal, but otherwise pull out and shovel into a bucket.
535 Keith said Washington County has a scrappy scraper that's a strategically sized 5' quick blade in
536 front of Bobcat that can push and pull. He said it has helped to speed up their operation. Tom said
537 would like to see pictures of that.

538 **Marion County:**

539 Mike said out of 140 bridges, Marion County **only has a handful of bridges that were constructed**
540 **with steel components**. He said they have one functionally obsolete truss steel bridge that is on
541 the historic registry that crosses over the Pudding River. He said its rating is high enough that it is
542 not on the replacement list. He said not a whole lot is done to steel bridges.

543 They are inspected by ODOT and the county receives maintenance recommendations. Mike said some
544 have the original lead based paint so there is significant removal involved and so far they are leaving
545 as is. He said maintenance includes cleaning decks, maintaining rails, and cleaning sidewalks.

546 Don said Marion County also has two floatable "bridges" (ferries) that the county would like replaced
547 with a bridge. He said if anyone has an alternative bridge design to chime in.

548 Mike said they have **minimal maintenance with birds, so they leave them alone**.

549 He said they have one steel bridge, cantilevered to allow for the east hillside to move while the bridge is
550 supported on the west side. He said crews take monthly measurements and have to lift and excavate
551 behind the slabs and then push backwards to allow the next area of movement to happen.

see "Over The Shoulder Topic Index" ongoing WORD file for meetings' topics

552 Don said birds are pretty destructive to paint and ODOT uses ag cannons to scare away birds on their
553 Columbia River bridges.

554 **Washington County:**

555 Keith said they have **no steel bridges in inventory**. He said they used to have one that was built in
556 1955. He said it was functionally obsolete on an arterial roadway and replaced about five years ago.
557 He said it had numerous maintenance issues so it was easier to replace then try to repair.

558 He said they do have some bridges with steel components, but do not do any real paint, which is
559 problematic with environmental concerns. He said although they did a lot of bridge cleaning in the
560 1990s-2000s, they don't do much anymore especially with bridges that have waterproof treatments.
561 He said they've had to deal with birds during nesting seasons and their capital projects staff have
562 dealt with that by planning around the nesting birds.

563 **Pierce County:**

564 Gary A. said they have **eleven steel bridges**. He said a couple are railroad cars, one is steel truss, and
565 the rest are I-beams. He said most are 20-30 feet length.

566 Gary G. said maintenance includes deck and guardrail repair, bridge cleaning and deck spalling, but
567 they don't do steel repair. He said all major repaints and steel structure repair is contracted out. He
568 said they have two ferries. He said they haven't done power washing in years due to environmental
569 issues.

570 **Spokane County:**

571 Randy said they **only have a handful of steel bridges**. He said all but one is short span and one is
572 fifteen years old.

573 He said all are in pretty good shape and have no significant maintenance problems. He said they don't
574 have any painted bridges left and don't have bird problems.

575 **CRAB:**

576 Bob said when the City of Spokane rebuilt the Monroe St. Bridge, a huge arched structure, they had a
577 **terrible bird situation**. He said there was 20-30 tons of guano and the city didn't know what it would
578 do to prevent this from happening on the new bridges. He said they retained the huge arches and
579 rebuilt everything above the arches. Bob said some of the guano had to be taken to Arlington,
580 Oregon for disposal. Mike (Spokane) said it ranged from 3-6 feet deep in places.

581

582 **Topic 42: Bridge Maintenance: 5/6 – Large Culverts**

583 **Deschutes County:**

584 Tom said they are just now getting into asset management. He said a lot of box culverts had no
585 markings on them so crews aggressively marked them.

586 He said they're going to try and remove some bridges that are over mainline canals because they have
587 trouble getting under the bridges and some have weight restrictions in areas they want to run trucks
588 through. He said they are looking at Con/Spans that are 15 feet deep and may replace several
589 bridges with them. He said they're wider, have a new approach, and will remove the weight
590 restriction on these bridges.

see **"Over The Shoulder Topic Index"** ongoing WORD file for meetings' topics

591 Tom said one issue to consider is if drifts coming down would flush through because these are over
592 mainline canals. He said he's instances when they've widened the road but didn't widen the culvert.
593 He said they are aggressively building headwalls to accommodate traffic and heavier loads.

594 Don asked if they had issues with arch tips or corrugated steel pipes. Tom said yes, they have service
595 life on them and they do dig outs and replace. He said they are looking at one today and if it only has
596 one year of life, they don't want to extend because it would be better to replace. He said he liked
597 plastic but Deschutes County is in fire country and it's not a good idea because they can burn out.
598 He said they're sticking with corrugated metal and can get 40-50 years of life.

599 **Marion County:**

600 Don said a vendor showed him concrete on a roll. He said it had dry concrete on mesh in 3' or 4' widths
601 and about 20' lengths. He said you roll out this dry membrane to line the bottom or walls of the
602 structure, add water, and the concrete shapes to the structure. He said it looked like a good fix for
603 old box culverts or bottoms of some structures, but there is an expense and wanted to know if
604 anyone has used.

605 Mike said Marion County has **65 large box culverts**, with 8 over 20 feet so they are on MBI list and are
606 inspected by the state. He said the rest are done in house by inspectors in the engineering staff.
607 Mike said these culverts range from single tube to triple tube culverts and lot of time the flow likes to
608 collect in one tube so the structure isn't able to handle flow in certain months when more drainage is
609 needed. He said they have used an excavator in the summer months to clean out material in box
610 culverts to retain flow capacity.

611 Mike said maintenance issues include a lot of concrete spalling where aggregate falls out and collects,
612 as well as ring wall repairs and clearing drift in culverts to keep channels clear. Ryan said they have
613 also done selective channel realignment to increase flow and prevent silt buildup.

614 He said with corrugated pipes pretty much maintenance free, they just monitor for crushing or
615 collapsing. Mike said most are new and put in within last eight years.

616 **Washington County:**

617 Dave said they **have 571 major culverts** and a total of 3,068 culverts. He said they have about \$6
618 million replacement expenditure for replacing 45 culverts that don't meet standards that are
619 environmentally requirements. He said they have 86 box culverts and 55 arch culverts to be
620 replaced, mostly with corrugated pipe. He said he's not aware of any Con Spans.

621 Keith said some in works because can't build roads without hitting water in any direction.

622 He said a 300 foot long box culvert is being installed north of Hillsboro under Washington County
623 maintenance jurisdiction. He said there are real maintenance concerns because there is no access
624 to the to 300 foot culvert except the inlet and outlet. He said the culvert is 5' 6' tall and a confined
625 space, and they have no one on staff that's certified in confined space. Keith said this was being
626 installed for fish passage. Don (Marion) said they might have to put in lights for the fish so they're not
627 disoriented. Don asked if there was a chance to put a manhole midway on the culvert. Keith said it
628 crosses an easement property and county road so even a manhole on the county road would leave a
629 200 foot inaccessible area. He said it's already being built and they will inherit and deal with it.

630 Keith said through the early to mid-1990s he was involved with a handful of structural arch or structural
631 plate aluminum or aluminized steel culverts. He said he replaced small span timber bridges with
632 some successes. He said it was generally with concrete but also done by forced account. Keith said
633 they have dwindled on culvert replacement in the recent years and typically when they're replacing
634 one, they'll oversize and sync it so it can accumulate a natural bottom. He says they like to shy away
635 from double barrel box culverts because they accumulate drift in the center.

see "Over The Shoulder Topic Index" ongoing WORD file for meetings' topics

636 **Pierce County:**

637 Gary A. said they have less than **five culverts over 20 feet** and a **few more that are shorter** than 20
638 feet of concrete, steel and aluminum.

639 Gary G. said maintenance is status quo - they pull out debris, clean back brush and debris, and pull out
640 dirt. Don said Marion County had to replace a culvert that was beaver damaged that eventually blew
641 out and took out the culvert and whole road. He said the drainage engineer said that roads are only
642 a series of dams.

643 Gary G. said they do have a beaver issue on some of the larger culverts. He said they've created a
644 "beaver deceiver" which is a giant metal cage they put on the inlet of the pipe and then run pipes thru
645 it so beavers can't figure out where to play. He said it is very effective. Don asked for photos. Gary
646 G. said most of it is underwater but can share the design. Keith (WA Co) said they have "**beaver**
647 **defeater**" and they seem to be very effective. Don asked for photos of that too.

648 **Spokane County:**

649 Randy and Mike had to leave the meeting.
650

651 **Topic 43: Bridge Maintenance: 6/6 – Bridge Approaches / Guardrails /**
652 **Signs / Traffic Safety / Other Bridge Maintenance Issues**

653 **Deschutes County:**

654 Tom said they had a couple of issues. He said one is a **lot of bridges didn't have object markers** so
655 they made a real effort to object mark all bridges and have been successful.

656 He said the other issue is the **headwalls of a bridge** where the area sunk isn't huge and asphalt won't
657 stick. He said they are trying to build up with a Durapatch AC spray machine. He said they had one
658 area that had shoving on a major road where people slowed down on the hill to turn. He said he was
659 happy with the machine because it can build up to grade, fine tune and take out dips in approaches.

660 Tom said Deschutes County is putting **butterfly reflectors** on D of guardrail at about 10 foot intervals.
661 He said it really helps stand out and handles snow coming off the plow. He said they did it on a new
662 guard rail and had leftovers and are using on existing guardrails.

663 **Marion County:**

664 Mike said Marion County has a lot of **settling approaches**. He said the main thing is figuring out what
665 happens with the material, whether it's settling or meandering into the stream bed and washing out
666 the headwall and has to pump out to see. He said between driving sheet pile or adding headerwall
667 boards, improving backfill will solve the problem.

668 Mike said then they can cut the road open and compact backfill material and pave a smoother
669 approach. He said they are working to eliminate whale tale end on guardrails and are transitioning to
670 ¾ end wrap if not a full end wrap piece.

671 Mike said they are maintaining **zebra boards on object markers** but wants on both side of the bridge
672 as well as adding object marker stickers to ends. He said they will call and get pricing on butterfly
673 reflectors because he thinks it's a good idea and would like to add to box culvert rails.

see **"Over The Shoulder Topic Index"** ongoing WORD file for meetings' topics

674 He said they haven't had many issues with the **transient community** and have signage that living
675 under bridges is prohibited. He said when they do have problems they report it to the sheriff's office
676 and they make frequent site visits to detour folks from setting up camp. Ryan said with the transient
677 community there are safety issues and they promote awareness with crew members. He said there
678 is a chance of human waste and hypodermic needles, and workers need to take a good look before
679 crawling under a bridge.

680 He said they recently acquired a whole patch attachment for the mini excavator and should improve
681 compaction efforts on approaches. Ryan said one they used it on was geo-tech road style and they
682 dug down below the grade of the headwall boards and built it back, and then built a bridge approach
683 burrito. He said he's interested to see how it works out.

684 Tom asked about **herbicide treatments under the bridge**. Mike said the bridge crew took this over from
685 the vegetation crew and are using AquaNeat within 15 feet of stream-ways. He said crews also fill
686 out spray sheets, which were reintroduced two years ago. Mike said they worked with environmental
687 services staff on laying out BMPs and they can still use these chemicals, which keep maintenance
688 down.

689 **Washington County:**

690 Keith said they are looking to expand their **spray program** and are looking to get more of their crew
691 certified to use a water-friendly type chemical. He said they have consolidated efforts with the capital
692 projects division on types of approaches, so they don't have to do a lot of treatments to guardrail
693 approaches.

694 He said they have a significant amount of **graffiti** throughout the county and are basically ignoring
695 what's underneath the bridge and only tackling what's visible to the public. He said they are using
696 community service folks to cover up or remove. He said it's a major concern but don't have the
697 resources to do what's not visible. Keith said they deal with **transients** occasionally and work with
698 Washington County Sheriff's Office. He said they are required to follow a county ordinance that
699 mandates they store any collected belongings for up to 30 days and has a notification process.

700 **Pierce County:**

701 Gary A. said they have no upgrades to approaches planned. He said most have zebra boards on both
702 sides. Gary G. said they focus on maintenance issues noted in the bridge engineer's report and turn
703 approach issues over to traffic.

704 He said they have a small grinder they bring out and **repave approaches**.

705 Gary G. said they have some erosion problems due to high water and they'll excavate by bringing in
706 plating and rock, and then build back up and repave. He said Pierce County has a river
707 improvement district that was started to assist farmers protect farm land before the roads division
708 opened up. He said they maintain all brush and vegetation and keep it cut under the bridges.

709 He said most **guardrail approaches** have been updated in the last 10-20 years. He said they are having
710 a problem with trinity type guardrails involving a lawsuit issue so they are replacing them.

711

712

713

**** End of Meeting #17 ****

see "Over The Shoulder Topic Index" ongoing WORD file for meetings' topics

714 **CONFERENCE CALL MEETING # 18 – APRIL 2, 2015**

715 Meeting Participants: 14 total / 4 agencies

716	Deschutes	None				
717	Jackson	None				
718	Marion	Don Newell	Pete Delapp	Matt Knudsen	Keare Blaylock	Jolene Bray
719	Washington	Keith Lewis	Dave Schultz	Dan Henry	Scott Gorsek	
720	Pierce	Bryan Chappell	Don Wells			
721	Snohomish	None				
722	Spokane	Bob Keneally	Bud Simmons	Randy Moran		
723	Yakima	None				
724	AOC	None				
725	CRAB	None				
726						

727 **HOT TOPICS/UPDATES:**

728 Don said he has been working with Marion County's public works director about **adding an engineer**
729 that is not part of the capital projects group. Don said the capital projects group has assisted road
730 maintenance but underscored the need for an engineering piece in road operations. He said he
731 looked at agency org charts posted on the OTS website for this restructuring and that OTS has
732 become really important as a critical resource the past few weeks.

733 Don said the Marion County Sign Shop has been asked to do a **major sign upgrade** on a federal forest
734 access area road. He said he saw how Pierce County mounted signs, which was very helpful.

735 Don asked the group to discuss agenda topics for upcoming meetings. He said the agenda topic for
736 this meeting is "drainage," and the group is scheduled to discuss "closed systems and drainage
737 systems" at the May meeting. Don said the June meeting is the last meeting until September and
738 asked the group if they wanted to discuss "**traffic markings and signs**" at this meeting or another
739 topic. He asked everyone to look at the list of potential topics on the agenda and let him know if they
740 have a preference. He said he foresees the OTS project ending June 2016 but may be done by
741 Christmas with all the topics currently identified. He asked for feedback from the group. Keith (WA)
742 and Bryan (Pierce) both said they were okay with the remaining topics and didn't have anything else
743 to suggest. Don said he would like to cover traffic markings, signage, and traffic lights by summer.

744 Don said meeting notices are now being posted on the Association of Oregon Counties (AOC) website.
745 He said he's writing up a proposal for a NACO award and the deadline is next week. He said all
746 agency participants will receive equal credit if an award is received. Don said OTS now has a closed
747 website (password required) but wants to promote the meeting notes to the public. He asked if
748 people are comfortable with that. Don said he viewed these as a public record and asked if the
749 group was comfortable with these being posted to the public. No one had any issues with public
750 availability. Jolene will post as PDFs on main website.

751 Don said Snohomish County said they are willing to host a site visit in spring 2016. ~~He said Chris in~~
752 ~~Deschutes may host in Fall 2015.~~ Don said he will discuss with Chris to confirm and asked if
753 everyone agreed with this.

754 He said Deschutes hosted a two day **herbicide training** that was very successful that Marion County
755 attended. He said Morrow County hosted an eastern county public works meeting and Marion
756 County staff attended that.

757 Don said they then went to Heppner to Morrow County with Deschutes County staff and looked at their
758 **large aggregate chip seals**, which was pretty exciting.

see "Over The Shoulder Topic Index" ongoing WORD file for meetings' topics

759 He said he spoke with John Vial, Jackson County public works director, at a statewide meeting and he
760 is reading OTS meeting notes and believes in the program, but hasn't shifted resources for other
761 staff members to participate in his place. Don said he thought about adding another county to
762 participate but since we're near the end it doesn't seem viable.

763 **Topic 44: Drainage: 1/4 – Agencies' Programs and Inventories**

764 **Marion County:**

765 Don introduced Pete, a supervisor, and said they do drainage and ditching during non-daylight savings
766 time. He said Marion County has 268,000 feet of ditching and four different crews did 30 miles of
767 ditching last year.

768 He said Marion County until recently had four **GradAills** but now have three. Don said this is the main
769 tool for ditching and is also used to maintain culverts, and have two inductor trucks to flush. He said
770 they have 150 miles of closed systems including catch basins inside UGB and that's where the
771 vacuum street sweepers are working. He said he will include budget figures for the cost of the
772 program in the meeting notes.

773 Don said Marion County has two **environmental specialists**, Matt K and Keare B, that help crews stay
774 in compliance and follow rules. He said they also do informal training on different topics such as
775 herbicide and document class time for employees for reports. He said he will include the annual
776 report on OTS website.

777 Matt (Marion) said they have **NPDES MS4 annual report, TMDL report, and BMP report**. He said they
778 go over different aspects of operations, including ditching, and show how many inspections and
779 ditching is done. He said they provide as much data as needed for the compliance report. Matt said
780 they are currently working to get migrant bird treaty act compliance and ongoing capital projects
781 compliance.

782 Don said that Matt and Keare go out to sites and give recommendations to crews, and crews are very
783 aggressive with compliance. He said the biggest concern is agriculture and crews deal mostly with
784 their issues. Matt said a point to be made with agriculture is that the Soil and Water Conservation
785 District (SWCD) helps quite a bit with problem sites and provides funding for remediation and BMPS
786 for agriculture properties. He said staff contacts SWCD when we have a major issue, but it's a
787 voluntary program and sometimes they receive compliance and sometimes they don't.

788 Don said Marion County also has a biologist who helps with vegetation.

789 **Washington County:**

790 Keith said their 2014-15 **budget for drainage operations was \$2.3 million** and their budget for 2015-
791 16 is \$2.5 million. He said they're finding a shift in what they're doing with these funds and are
792 moving to work done in closed systems and are doing less ditching.

793 He said their work includes repairing the county drainage system and evaluation of erosion control
794 compliance. Keith said materials increased by \$134,000 last year for pavement excavation and
795 repair, which they're doing more of, and other material costs that have gone up include aggregate
796 and culvert pipe. He said they are bringing on a double drum steel roller for asphalt patching and will
797 explore looking at a vacuum excavator truck. Keith said he knows it will be limited capacity but it's
798 better than nothing because they're borrowing now.

799 He said they have **700 miles of ditches** and their rating system is going through asset management.
800 He said their average ditch ratings are close to 90 on a scale of 0-100. He said a large portion of
801 their drainage system is switching over to pavement.

see **"Over The Shoulder Topic Index"** ongoing WORD file for meetings' topics

802 Keith said their work season is generally October to March but not exclusive. He said they currently
803 have about 6 miles of ditching planned but receive a number of requests throughout the year. He
804 said they often have another 3 miles per year that is requested that they can't get to. He said city
805 agencies and clean water services throughout the area take up a major portion of what they'd do in
806 an urban area, so the county doesn't do much in urban area.

807 He said **environmental reporting** is similar to Marion County. Keith said they have two environmental
808 specialists and coordinate reporting throughout year, and a consultant they work with for annual
809 reporting requirements.

810 Scott said they have been reviewing every road looking at functionality and criteria on grading
811 topography and are also looking for vegetation and spot ditching issues. He said when they do
812 ditching they are following up with **hydro-seeding**. Matt asked what time of year they do this. Dan
813 said they try to do in the spring and fall, but do very little in the fall because little ditching is done in
814 the summer. He said when they finish ditching, contractors put out biobags that then hydro-seed
815 during germination time.

816 **Pierce County:**

817 Don Wells said their **annual drainage budget is \$2.6 million**. He said they do a lot of ditching but this
818 year has been pretty mild and they're doing **12,000 lineal feet of ditching**. He said they typically do
819 their ditching during the parameters of the winter months.

820 Don said in the summer they have an open HPA and try to faction into two parts for maintenance in the
821 year. He said it's an annual program but they receive requests for action from citizens and will
822 address as appropriate. Don said another part of the drainage program is they have a \$1 million
823 grant from the Washington Department of Ecology to **upgrade an old drywall systems** that requires
824 them to have close to 200 structures replaced by May. He said they have another grant beginning in
825 the fall for about \$770,000 for additional dry wells. He said this is typically done for about \$4,000-
826 5,000 a day with Vactors cleaning structures and jet lining tiles.

827 He said the rest of their scope of work is lid cleaning and reacting to drainage or storm issues. Don said
828 an issue they've had is a lot of stolen drainage lids, with over 100 lids stolen in one area. He said
829 they are looking to put locking mechanisms in those areas.

830 Bryan said in 1999 when chinook salmon were on the **endangered species** list as a threatened status,
831 Pierce County got proactive and worked with local regulators creating regional road maintenance
832 guidelines, which allowed them to do work in the right of way without fear of a third party lawsuit. He
833 said it's not risk free but allowed them to do their work and they have reporting requirements based
834 off that. Bryan said since than almost all area jurisdictions have become part of this group and report
835 back about in water work and BMPs. He said with new technology they are looking at recording
836 actual locations where something is put down and taking pictures as part of the documentation for
837 the job site.

838 Bryan said they have **four vector trucks** with one located at each of their two satellite shops and two
839 out of the main shop.

840 He said they have **three decant facilities** and one at Puyallup they don't use. Don said Marion County
841 is trying different methods for decanting, such as using different bays to dump liquids on one side
842 and solids on the other to see how it dries out. Bryan said the biggest difference in the new decant
843 facility is that Puyallup set to a bio-swale and crews would have to stop to get caught up and at the
844 new facility they don't have to stop.

845 Bryan said due to requirements the new facility cost \$1.6 million and they received a grant for \$750,000
846 of this cost. He said they also incorporated reuse components and worked with Seattle University to
847 pay up to \$150,000 for a group of students to do testing to reuse the water molecule they have. Don
848 said he would like to have plans for that to post on website.

see "Over The Shoulder Topic Index" ongoing WORD file for meetings' topics

849 **Spokane County:**

850 Bob said their **decant center** cost not quite \$1.6 million and is almost ready to go.
851 Randy said their annual **ditching budget is \$300,000** and they deal with whatever situation needs
852 chased down.
853 He said they have **4 vectors** and **quite a few dry wells**. Don asked if they were decommissioning dry
854 wells or retrofitting them. Randy said they have not put in any new and are just maintaining what they
855 have. He asked Pierce County if the cost was the same with a separator of dry wells.
856 Don said the cost was the same and the next grant systems they are getting into are more brick and
857 mortar and those costs will probably increase. He said everything gets retrofitted to two stage
858 structures.
859 Randy said they do have to deal with fish and wildlife about what they can and can't do around projects.
860 He said they have an environmental engineer and she works with fish and wildlife on permits. Bud
861 said most of their crews are doing ditching right now and are about a week ahead of schedule. He
862 said they are probably around the 35 mile mark on ditching and 15 mile mark on gravel roads. He
863 said all work is done with a grader and backhoe.
864 Bud said they are just now starting a culvert inventory in the rural areas next week. He said they will use
865 people on light duty and hopes to have done by this summer. He said they will hopefully be able to
866 identify and rate next year. Don said CRAB may have a rating system in place if he'd like to use.
867 Don asked what field tool used to GPS them. Bud said they have three GPS systems and staff will drive
868 out and identify. Bud said due to budget and staffing issues, crews will inventory pipes this year and
869 rate them next year.
870

871 **Topic 45: Drainage: 2/4 – Ditch Maintenance**

872 **Marion County:**

873 Don said Marion County has gravel road ditches and paved road ditches. He said they also have a
874 drainage district near town that has a low velocity ditch system that requires a little extra and special
875 care, but there's other dollars for it. He said the county uses inmate labor for hand brushing each
876 ditch.
877 Pete said the gravel road ditches are maintained primarily the same those on paved roads with a grader
878 or track hoe. He said most ditches are round bottom ditches. Pete said the **GradAll** works great on
879 gravel roads and has a bucket that can be turned on an angle to put in "V" ditches when up against
880 the bank. He said most ditches are done with GradAlls which are handy and are on wheels, which
881 means they can get to the site and ditch faster.
882 Pete said ditching **crews** usually consist of 2-3 dump trucks, 2 flaggers, 1 GradAll and 1 operator,
883 averaging 1500-3000 feet a day of straight line ditching. He said they have more problems finding
884 dump sites for the dirt which is often wet and sloppy. He said about 75% of the area is farming area
885 and they can set dirt back in farmer's fields, and have had to talk to farmers about not farming so
886 close to a ditch and leaving a buffer zone.
887 Pete said they also use **bio bags** and try to place every 300 feet in round bottom ditches. He said they
888 are hard to use in a "V" ditch so crews will use rock chuck dams and some don't need any type of
889 filtering system. Pete said they don't do a lot of gravel road grading this time of year because it's too
890 big a mess but they will later and will use a grader and dump truck.

see "Over The Shoulder Topic Index" ongoing WORD file for meetings' topics

891 Pete said they also pull shoulders with the main objective being to get it off roads and into ditches. He
892 said they have a tendency to get the berm of dirt built up between the road and ditch, and will pull
893 over the shoulder into the ditch. Pete said they will do this with a paved road too and will use a
894 grader to grade back out to the pavement and then load into a truck.

895 Don said **GradAlls** come in two sizes and two axle configurations, and the big one takes up a little more
896 footprint space. He said they have one of those and priced one for replacement in 2020 and the cost
897 is \$380,000. He said when they had to decide three years ago about buying a smaller one, they
898 found it cost \$250,000 so they decided to buy an excavator and mini hoe.

899 Don said as it turns out the track excavator is quite busy now and is a good tool that wasn't in their tool
900 box. Pete said for the most part the GradAll is better than the track-hoe. He said when they get into a
901 storm with high water some tiles need to be opened up and crews can go out with the GradAll and
902 flaggers, open up driveway tiles, and then move onto next spot. Don said with a big storm event
903 there is nothing better than a GradAll to get debris off the road.

904 **Washington County:**

905 Dave said for the last several years they've rated 25% of their system on an annual basis, looking at
906 which ditches need work as part of their annual work program. Scott said in their **condition ratings**
907 they try to identify work location with GPS coordinates, which is quite beneficial because everyone
908 has a smart phone. He said they take about two years to inventory and rate because of funding
909 restrictions.

910 He said they're reallocating funds and redesigning their program to an urban road system and filtering
911 down to lower classifications. Keith said their ditching program has evolved throughout the years and
912 is now condition based, which drives the need for inspection and condition rating.

913 Don (Marion) asked if they had GIS maps with vector lines that showed where drainage was located
914 and if they could share to post on website. Dan said they have three types of equipment for ditching:
915 rubber tired excavator, small 308 track machine, and backhoe. He said the excavators allow them to
916 tilt bucket so they use if they need to "V" ditch or round ditch. He said the crew usually has **one**
917 **excavator, dump truck, utility worker, and 1 or 2 flaggers.**

918 Dan said they use **bio bags** and shoulder pulling to armor ditches with rock for erosion control and then
919 hydro-seed everything after they're done. He said they do this seasonally from when it starts raining
920 until about May. Dan said they would do ditching during the summer only during emergency but try to
921 do culvert replacements during the dry season. Keith said they'll incorporate skip ditching where they
922 can.

923 He asked about Marion County placing ditch spoils on back line. Pete said the dirt came from the field
924 and if the field hasn't been planted and the farmer wants it, it makes sense to put it back. Don said a
925 big difference between excavators or GradAll is the speed they can drive. He said an excavator can
926 travel about 20 mph and GradAlls can go 55 mph. Keith agreed and said when traveling to work sites
927 crews can spend a lot of time in transit.

928 **Pierce County:**

929 Bryan said they have **1,200 miles of ditch** that they currently assess every other year and only look at
930 the portion adjacent to a culvert. He said they don't look at the rest of the ditches unless there is an
931 issue. He said it's difficult to assess a ditch and haven't done a whole lot yet.

932 He said they have about **150 bio-swales** in ditches and do an assessment on them every other month.
933 Bryan said they have vegetation cut down and then rebuild if necessary. He said the assessments
934 are done with **iPads** so supervisors can see where they need to perform and assign work. He said
935 they're fortunate to have asset management staff and engineers. Bryan said the environmental side
936 is set up to report all on timesheets and is reported back quarterly to the road maintenance group.

see **"Over The Shoulder Topic Index"** ongoing WORD file for meetings' topics

937 Don said they have 5 backhoes, 1 mini excavator Kabota 80, **1 Ditch Master (see posted photos)**, and
938 1 auger truck which is about 10 years old. He said in maintenance area one, they have sandy
939 ditches and the **auger truck** (Ditch Master photos) works well for them. Don (Marion) asked if they
940 could share pictures for the website.

941 Don said they ditch in the fall and winter months, and some in the summer in wetter areas where they
942 need HPA's in July and August, and also on Crystal River Ranch Road, where there is a ski resort.
943 He said they try to get done before the snow hits because it fills up from slides by August or
944 September.

945 Don (Marion) asked if IT wrote an application for ditch maintenance. Bryan said any feature of ditch is
946 taken care of by crews using GIS through an iPad that they use for all spatial work in field. Matt
947 asked about their bio-swale maintenance. Bryan said their stormwater manual tells them when they
948 need to perform maintenance based on grass height and sediment amount, and they try to set a
949 trigger before that. He said their NPDES permit requires one inspection per year and although they
950 have 12 months to do they try to do work within a couple weeks of when found by assessment.

951 **Spokane County:**

952 Randy said each district has backhoes and the majority of ditching is done with **backhoes**. He said just
953 about every ditching project they have a local asking for material, so they sign a waiver and remove.
954 He said the crew side depends on the road.

955 He said they have a drainage crew and they take care of problem areas where culverts are clogged and
956 use a backhoe. He said **a grader can go out and do 1 ½ miles per day**.

957 Randy said they don't use biobags and so much ditching is done with a grader that it would be a
958 problem, but they do have check dams.

959 Keith asked if the majority of **spoils is put back on property or at a dump site**. Randy said the plan is
960 to take spoils to one of their pits, but the majority of the time somebody local requests it. He said very
961 few times do they have to go to pit. He said if the ditch only needs to be reshaped, they will use two
962 graders - one to pull out and another to reshape.

963 Dan asked if others **called for locates** when they do ditching. All agencies said yes. Pierce County said
964 they don't go below bottom of the pipe and if not going lower than 6 inches, they don't call for
965 locates. Marion Count said they did every time.

966 Pierce County said they have regional road maintenance guidelines online and he'll send Don a link to
967 share with group.

968 Don said the group will pick up discussion next month and cover other drainage issues not covered
969 today. He encouraged the group to ask their environmental or engineering staff to join the meeting.
970 He will look at agenda items for the June meeting.

971

972

973

**** End of Meeting #18 ****

see "Over The Shoulder Topic Index" ongoing WORD file for meetings' topics

974 **CONFERENCE CALL MEETING # 19 – MAY 7, 2015**

975 Meeting Participants: 16 total / 7 agencies

976	Deschutes	Tom Shamburger				
977	Jackson	None				
978	Marion	Don Newell	Pete Delapp	Walt Wick	Matt Knudsen	Jolene Bray
979	Washington	Keith Lewis	Dave Schultz	Scott Gorsek	Aaron Clodfelter	
980	Pierce	Bryan Chappell	Don Wells			
981	Snohomish	Dave Finney				
982	Spokane	Bob Keneally	Marianne Barrentine			
983	Yakima	None				
984	AOC	None				
985	CRAB	Bob Moorhead				
986						

987 **HOT TOPICS/UPDATES:**

988 Don said there will be no meeting in June or the rest of the summer as agencies are busy with their
989 summer workloads. Don said he believes this group will conclude in May 2016 unless this group
990 wants to do something else going forward. He said he will reevaluate if the group wants to add
991 another county at this juncture but it's late in the game and asked participants to share any other
992 county agency they think should be included.

993 Don said the group meeting notes are now posted on the OTS home web page and are available to the
994 public. He said there is an index file posted that outlines which topics were discussed in which
995 meetings.

996

997 Chris and Tom at **Deschutes County** said they are looking at the best way to use OTS time during the
998 next site visit and want to do something different. They invited everyone to make individual
999 appointments to **watch their chip seal operations**. Don said Deschutes County is a
1000 big chip seal group with multiple recipes, deal with urban and rural roads, and treat bike lines. He
1001 said they also do chip sealing for small and large cities and with the exception of ODOT are the
1002 largest chip sealer in Oregon. Tom said they plan to chip seal from May 19 through August 20 and
1003 have a lot to do after July 4th but welcomed everyone to come and see their process. He said they
1004 do things a little differently so there might be new techniques people will see.

1005 Keith (WashCo) asked if Tom could lay out a general schedule for the season. Tom said they start out
1006 in the desert without a lot of side traffic in May. Beginning June 8 they will do chip seal in Redmond
1007 on their arterials and then move into residential streets. On June 15 they will do streets in Bend. He
1008 said crews work 4/10s but may be doing some Friday work. Tom said they will be doing an **auto**
1009 **seal, which is a chip seal using medium set 1/50 oil that can use dirtier rock**, on a gravel road
1010 conversion on a low volume dead end road. He hasn't set a target week on that yet but will more
1011 than likely be in June or July.

1012 He said will also do another gravel road conversion **using grindings and emulsion oil**. He said they
1013 are trying to think of ways to use excess material and are finding they have uses for them. Tom said
1014 the grindings will be done in the heat of season because that's when they go down best. He said
1015 they are also doing curbed residential streets so will shoot the curbs and raises on intersections, and
1016 will run two machines and two smaller crews to increase productivity.

1017 Tom said their work day is usually 8:30 a.m. until 4:45 p.m. and they work this schedule non-stop all
1018 summer.

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1019 Keith asked if they are **stockpiling materials for grindings** and working with a supplier to mix
1020 appropriately. Tom said not comfortable using right out of the planer and thought they may have to
1021 run through and grind up a bit more. He said they are talking to Sigmund, who has a portable grinder
1022 they can use. He said they may chip seal that road the following year and are interested in seeing
1023 the value. He said a vendor brought a portable recycler and although he thought the grindings
1024 looked dry, it ran well after they were put through the recycler with added oil. Tom said the cost is
1025 under \$100,000 and has the capability of adding oil if grindings are dry. He said you can also have
1026 chip seal in there and it only takes about a gallon of oil and a wand for tacking. Tom said it is on a
1027 double axle trailer with an asphalt gate, can shoot 1,000 lbs into conveyor into a diesel fired heater,
1028 and can be used for permanent patching of holes. Tom said he's seen recyclers before and wasn't
1029 impressed but he was impressed with this. Tom said the technology can be used when plants are
1030 closed. He said the cost is \$20 per ton, made 1,000 lbs in 15 minutes, and he was amazed with the
1031 quality. All this info is available on the OTS web directory under X-Pavements.

1032
1033 Don said he submitted the OTS project for a **NACo Achievement Award**. He said he applied as if the
1034 submittal was coming from all eight counties and should hear something by the second week in
1035 June. Don said he will more provide more info when he hears from NACO.

1036 Don said he's giving a presentation on the **MORE (Managing Oregon Resources Efficiently) IGA** at
1037 the Government Finance Officers Association (GFOA) Annual Conference on June 1st. He said
1038 information about the MORE IGA is available on the website at www.MOREOregon.com.

1039 Don said he's doing an update at the OACES conference in June about this project and the MORE IGA.
1040 Tom asked how many agencies have agreements with ODOT they're working under like the MORE
1041 IGA, where they exchange personnel and equipment. Don said ODOT has an OMAT agreement,
1042 which was copied from MORE's predecessor the PMAT (Portland Metropolitan Area Transportation)
1043 agreement. He said he would send Tom their contact information.

1044 Keith said through the MORE agreement they have talked to partners in Oregon City and are renting
1045 their 1 meter self-loader planer this week and it's very successful. He said they can do a lot more
1046 with it than their Bobcat. He said they're also interested in recycle. Tom recommended contacting
1047 Dewey Kennedy at Gilliam County to look at grindings, as well as Arthur Smith in Wasco County.
1048 Don said as a result of OTS discussions, a Marion County crew is upgrading a gravel road with
1049 grindings today.

1050

1051 **Topic 46: Drainage: 3/5 – Culverts – Cross and Driveways**

1052 **Deschutes County:**

1053 Tom said they don't have huge drainage issues but most culverts serve a dual purpose as irrigation
1054 canal crossings. He said they run into irrigation ditches that collect debris during the winter and one
1055 of their biggest problems is when water turns on it plugs the culverts with weeds and debris. He said
1056 some roads were pretty narrow and they were widened but the culverts were not, so one of their
1057 biggest winter projects is to widen culverts. He said some are odd sizes and need to get seals and a
1058 tight extension that won't leak.

1059 Tom said they have quite a **bit of fire** in Deschutes County which plastic culverts can't handle so they
1060 stick to metal. He said Deschutes doesn't own a flusher / vactor truck so they have to hire from the
1061 cities of Redmond or Bend.

see "**Over The Shoulder Topic Index**" ongoing WORD file for meetings' topics

1062 He said they brought on a new supervisor that has a lot of asset management experience and are
1063 setting up a way of inventorying culverts. He said one big shocker in Deschutes County is that there
1064 are **no driveway culverts and when they get thunder storms they have problems with**
1065 **driveways washing out.** He said where they are needed they are putting them in. He said they
1066 prefer not to spend much time on this but on occasion need to. He said if they go down a couple feet
1067 they are into rock so most culverts are fairly shallow so don't need much beyond the minimum
1068 requirements.

1069 **Marion County:**

1070 Don said Marion County has two inductor trucks and they carry 1,500 gallons water with 10-yard
1071 capacities. He said in the fall wet season they will have two crews a day out "chasing water" and
1072 making sure things are flowing.

1073 Don said Marion County began a culvert inventory years ago and mapped some of it but has not kept
1074 up. He said driveway culverts are not at all mapped. Pete said they get a lot of rain and have 1,000
1075 culverts.

1076 He said maintenance is ditching but in some areas they go along with **Gradalls** to clear out and call for
1077 a flusher/inductor truck to clean out. He said most of their culverts are N-12 plastic pipes and he
1078 understands why Tom will stick with metal.

1079 He said they had a situation where the culvert sucked in hot air from a fire and ruined the plastic pipe.
1080 He said if they have deep culverts they **rent shoring** and have replaced some 15-feet in ground.

1081 Don said they had one project two summers ago where they had a large diameter culvert in a flowing
1082 stream and did lining in the **culvert with snap-tight**. He said when you line you increase your
1083 velocity. He said it was a nice project because they didn't have a road closure and it was very cost
1084 effective. Don said everything they do is guided by environmental BMPs, which are posted on the
1085 online directory. He said they went to flip cards (printed on small cards and attached on a shower
1086 ring) and all crew members have their own BMPS to reference when in the field.

1087 **Washington County:**

1088 Keith said recognized 15 years ago they talked about **asset inventory** on culverts but it took some time.
1089 He said they have a lot of general info on the larger culverts but a lot of gaps and no info on the
1090 smaller culverts. He said 10 years ago Washington County got more into asset management and
1091 currently have a good handle on culverts (sizes, condition, and overall picture).

1092 He said Washington County is somewhat unique because in the UGB they don't do drainage. He said
1093 Clean Water does unincorporated areas drainage and inside the cities they do their own. He said
1094 they are focused on rural areas but are not equipped to do some flushing because they have no
1095 vactor truck.

1096 He said they work with partner agencies or hire out work. Keith said they borrow **vectors and thru**
1097 **IGAs** they borrow what they need. Don asked if they come with operators. Keith said they have their
1098 own operators that can operate the equipment, but if they break it they buy it. Keith said when
1099 replacing driveway tiles they do locates but generally only do culvert maintenance and if they are
1100 only going a few inches they will not call in locates. He said this does create a problem when utilities
1101 are right below the ground and are in flow line.

1102 Keith said if the driveway tile is in the county right of way the county will maintain but won't do full
1103 frontage of their property but if the property owner wants more they will work with them. He said they
1104 have a work program and will pick and choose regarding culvert replacements and if they need to do
1105 something significant, they may bench or slope down but don't get into shoring or deep trench
1106 replacements. He said they contract out this type of work. Keith said there are general **Best**
1107 **Management Practices (BMPs) they use.**

see **"Over The Shoulder Topic Index"** ongoing WORD file for meetings' topics

1108 Dave said they did an initial inventory in the early 2000s but have inspections based on risk now. He
1109 said the oldest culverts are inspected more frequently than the newer and culverts more at risk
1110 based on topography will get inspected more.

1111 He said Washington County has over **3,000 culverts** and they have a fairly comprehensive program
1112 based on age and condition. Scott said they do inventory through IRIS with GPS coordinates. He
1113 said it's not difficult to see with topography where culverts may lie and they have tried to label them
1114 with identifiers but that's problematic because markers disappear over time. He said they are
1115 currently in the process of identifying culverts that are inadequate and in the next fiscal year they've
1116 identified roughly a million and a half lineal feet to replace.

1117 He asked with vactor trucks what **minimum length of flushing hose** is needed on trucks. Marion
1118 County and Pierce County both said 400 feet.

1119 **Pierce County:**

1120 Bryan said when culverts that cross driveways they inventory both. He said they break down pipe
1121 between detention, culvert approach, and everything else is basically conveyance. He said they have
1122 **6,000 culverts and 5,000 approach culverts.**

1123 Bryan said they currently don't do inspections on approach culverts and only maintain if in the area. He
1124 said they have been assessing their culverts that are under roads every other year. He said parts of
1125 the county get a lot of rain and the culverts are under sized but they don't have the money or
1126 manpower to upgrade so try to keep as clean as they can.

1127 Bryan said they have backhoes, excavators, dump trucks, and just purchased a mini excavator. He said
1128 they have corrugated metal and high density polyethylene culverts. He said they have had vandalism
1129 in the area where youths dropped gas, lit on fire and burnt out the pipe. He said they patch around
1130 culverts but haven't done any culvert lining since 2007. He said there are a couple of locations they
1131 are thinking of doing lining or spray on fiber glass concrete mixture. Bryan said the issue they have is
1132 fish bearing streams and the need to upgrade pipe.

1133 Don (Marion) asked if culverts are marked or identified. Bryan said everything is located spatially and
1134 **they do put white markings at the end of each culvert.** He said they have talked about buttons
1135 but haven't moved in that direction yet. He said with iPads they can get to where everything is
1136 located

1137 Don (Marion) said Maddock Concrete is a concrete product that's matted and 20' – 30' wide and 30'
1138 long. He said after you lay it out in the culvert, you add water and it adheres to the wall of the culvert.
1139 He said he could try to find that info and share.

1140 **Snohomish County:**

1141 Dave said they have thousands of culverts. He said thirteen years ago, Snohomish County did a needs
1142 report but the rural area hasn't been well documented. He said they are starting a new program in
1143 asset management and will hopefully have everything inventoried via GPS.

1144 Dave said they have two vactor trucks in their north division and five in the south division, which is a
1145 more rural area with more catch basins.

1146 He said they maintain all driveway culverts unless it's off the right of way and then it's the home owner's
1147 responsibility. Dave said most of their work is tied into their paving program. He said when they get a
1148 list they take the vactor trucks and clean culverts, if needed, and then get a list from pavement and
1149 schedule for maintenance or replacement. He said most of their culverts are getting upsized. He said
1150 they used to have shoring but it was not kept up so they now rent.

1151 Dave said they do a lot of **fish passage culverts and box culverts**, and have an in-house crane but
1152 may rent if bigger is needed. He said they have done some slip lining and have tried buttons and
1153 fence posts but posts were hit by mowers and buttons covered by snow so they no longer do.

see "Over The Shoulder Topic Index" ongoing WORD file for meetings' topics

1154 **Spokane County:**

1155 Bob said they have an aggressive culvert inventory going on this summer. He said they learned a lot at
1156 Pierce County. He said they have **over 4,000 culverts** and some are buried, and are using some
1157 light duty employees to identify the culverts with GPS.

1158 He said they haven't started replacement program yet. He said they have **four vector trucks** and their
1159 hose length is 200'. Bob said most of their culverts are in rural areas and they don't get into the
1160 urban areas much.

1161 Marianne said they're working on a **BMP manual and will take a look at Marion County's BMP**
1162 **online**. She said they want something to be kept in vehicles that will be used. She said if any other
1163 counties have things to share they would appreciate it. Marianne said with fish passage they need to
1164 replace with lot of their culverts with larger culverts and it seems like a lot of culverts are pretty
1165 expensive.

1166 She asked how other counties are funding these because she's not seeing a lot of grants and is looking
1167 for creative ways to get funding. Don (Marion) said they had beavers plug a culvert and blow out
1168 road and it was \$200,000 fix. He asked if anyone had info to share regarding environmental
1169 compliance. Matt said they can provide documents that can be edited if Marianne needs that. Don
1170 will send an email with Matt's contact info. Bryan (Pierce) said they and Snohomish County are part
1171 of a regional road maintenance district, which is quite a benefit for them. Don said the folder is now
1172 "X-Drainage / Environmental" so to look for documents there.

1173

1174 **Topic 47: Drainage: 4/5 – Closed Systems (Catch Basins / Pipes /**
1175 **Manholes / Outflows)**

1176 **Deschutes County:**

1177 Tom had to leave the meeting for another commitment.

1178 **Marion County:**

1179 Don said quite a bit of Marion County's system is in the urban area in areas not annexed by the city. He
1180 said crews do **catch basin cleaning** with hoses attached to street sweepers during the summer.

1181 Walt said in September for about 1 – 1 ½ months, they take the street sweeper with one operator and
1182 one helper and go from catch basin to catch basin in east Salem and clean out, maintain, and report
1183 any culverts that needs rodded out or inducted. He said crews have been doing this for 4-5 years
1184 and also do some leaf pick up.

1185 He said they have a small camera that doesn't work well so they traded with the City of Salem who has
1186 two very nice complete **camera trucks** for any systems that need to be viewed with a camera. Walt
1187 said in cleaning and maintaining, crews use a vector truck and street sweeper with vacuum hose on
1188 back. He said the only oil/water separator is in the yard so they take all materials to Coffin Butte and
1189 truck over as they have time.

1190 Don said in recent years they've been on a schedule of cleaning every two years as the program
1191 objective and they've been proactive since **NPDES rules kicked in**.

1192 Matt said what they're seeing in the urban stormwater system is proprietary systems and more
1193 proposed bio-swales. He said the board of commissioners recently imposed **a stormwater fee** to
1194 pay for cleaning and maintenance of the system. Don said this is fairly new and will pay for a couple
1195 of positions and help offset direct costs.

see **"Over The Shoulder Topic Index"** ongoing WORD file for meetings' topics

1196 **Washington County:**

1197 Keith said they don't have lot of work in urban incorporated or unincorporated areas. He said they
1198 inherited more water quality man holes with capital improvement projects.

1199 He said they currently have no vactor truck but are budgeting in the next fiscal year for a **vactor trailer**.
1200 Keith said he knows they will have limitations and may look to a used vactor truck so they have more
1201 capacity and capability to do work.

1202 He said hose attachments sound intriguing and would be interested in hearing more. He said no staff is
1203 certified for work in confined space and they are looking to get certified. He said they applied for
1204 grants through a regional disaster preparedness organization and will look to get people certified in
1205 that program.

1206 Dave said in the rural area they have several features they have inherited over time. He said they
1207 worked with a consultant on part of the requirements for environmental compliance on water quality
1208 manholes.

1209 Don (Marion) said in Oregon DEQ requires all **drywells** to be permitted and on a decommissioning plan
1210 or containment plan. He said when the City of Salem annexed Portland Road they got 1,200 of them
1211 from Marion County. He said Marion County decommissioned all in the county so no longer have
1212 them.

1213 **Pierce County:**

1214 Bryan said in their enclosed systems they have **22,000+ catch basins and manholes, and 400 miles**
1215 **of pipe** that excludes culverts and driveway culverts.

1216 He said they do assessments on catch basins every year and do cleaning 40-45% of them within six
1217 months based off the assessment findings. Don Wells said they have four vactor trucks and they
1218 follow assessments. He said they look at their mapping system so they're able to clean and report
1219 out what they've done. He said currently to date they've cleaned 32,375 at a cost of \$58 per
1220 structure. He said the cost has gone down in the past two years.

1221 Bryan said when they started they had a lot of legacy issues because of pipes and catch basins. He
1222 said in 2010 it cost approximately **\$110 to inspect** and clean a catch basin and each year the price
1223 has dropped about 24% and is now about \$60. Bryan said when the permit first came online the
1224 system water management group insisted on more staff and trucks but now thinks they can drop
1225 down a vactor. He said they can get all permit done without overtime.

1226 Don W said regarding culverts, they have 21,926 lineal feet of pipe/culvert at a cost of **\$2.81**. He said all
1227 crews and vactor teams are trained in confined space. He said they have retrieval gear and air
1228 sniffers/testers, and do training with Allied and are looking at partnering with the sewage department
1229 who has a trainer.

1230 Don W said when they are done with the main cleaning they then do **confined space** so they'll do the
1231 training right before so it's fresh with them. He said they have about 20 people trained including field
1232 supervisors. Keith (WA) asked if training is done in-house. Don W said yes and they are looking to
1233 partner with the sewer department because they do this daily. He said they are also looking at
1234 setting up on campus a confined space training area with retrieval gear.

1235 Scott asked what type of device is measuring sediment in the manholes. Bryan said they measure from
1236 the water level down to the top of the sediment and use rods that are taped off every 6" so it's easy
1237 to see if they 12" of clearance. He said if they don't they turn over to the vactor crew who quantifies
1238 how much material they dumped.

1239 Bryan said they often have **two man crew who do assessments** and have as average around 130-140
1240 a day. He said they used to do 5 teams of 2 but they went through the county so fast they changed it
1241 up to 3 teams of 2, which has helped on the back end. He said crews use an iPad app.

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1242 **Snohomish County:**

1243 Dave said they're a lot like Pierce County. He said they have a good inventory of their catch basins. He
1244 said they're looked at yearly and if they need cleaning crews do but if not crews document they've
1245 reviewed.

1246 He said they have quite a few vaults and separate division takes care of 20 workers who are certified
1247 with in-house training. Dave said they used to have several **Ditch-masters trucks** but has found
1248 they don't work well with damp soil. He recommended taking a good look at them before purchasing
1249 because if you can pack soil with your hands, you can have problems.

1250 Don W (Pierce) said they're down to one and used to have three. He said it works well in sandy areas
1251 but doesn't work so well in other areas. He said they are trying to decide if they will keep or move on
1252 to something else.

1253 **Spokane County:**

1254 Bob said they use a **vactor truck** on their catch basins in the spring and fall. He said Spokane County
1255 is not under the same regulations as the west side but they get to their closed systems every 4
1256 years. He said they are mainly in the rural areas but have some in urban areas.

1257 **CRAB:**

1258 Bob said there was a Mobility software program developed by CRAB, and he understands it has a field
1259 for catch basins that is tied to mile post. He said they can use this program for pavement condition
1260 also.

1261 Don (Marion) said he heard CRAB has a roll up of chipseal and oil costs and asked if Bob can share.
1262 Bob said he does have that and will send to Don later today.

1263

1264

**** End of Meeting #19 ****