

Patching the Never Ending Job?

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- Pavement Specialist



Pothole Repair - Temporary



Throw and Roll



Throw and Go



Cold Patch



- Available year around.
- No heat needed
- Should have anti strip additive
- Needs to be compacted.
- Many types and qualities.
- Sometime the most expensive is the cheapest.

Hot Mix



- Lower Air Voids
- Easier to handle
- More stable if properly compacted
- Longer lasting?
- What's wrong with this picture?

Throw and roll patching procedure

- Remove water and debris from the pothole.
- Place hot or cold asphalt mixture
- Maximum lift thickness of two inches preferred
- Use truck tires or vibratory plate compactor (preferred)
- Move on to the next pothole
- By just rolling with a truck you can increase the performance of throw and go by up to a 50%

Permanent Patching

- Mark out areas to be patched
- Make sure that you get into sound pavement
- Mark square corners
- Remove damaged pavement
 - Milling
 - Sawing edges
 - Jack Hammer

Permanent Patching

- Clean area
- Tack all sides and bottom
- Place HMA in lifts not greater than 2"
 - Don't throw cause segregation
- Level mixture
- Compact each lift
- Check final height
- Fog seal patches





Partial Depth patch example

Mill and Fill

R312 – Asphalt Pavement Repair (Mill and Fill)



(1) Pavt Repair Milling Operation



(2) Sweeper



5) Steel Roller



(3) Tack Application



(4) Pull Paver



Patch Compaction

- Poorly compacted patch will compact under traffic
- Poor compaction may result in raveling or shoving
- Allows water to infiltrate patches.





Vibratory Plate

Photo Source:
http://r2.cygnuspub.com/files/cygnus/image/FCP/2011/AUG/495x330/chicagopneumaticlightcompactio_10317131.png

Combination Steel & Pneumatic Roller



100 potholes
scenario

Patching Method and Material	Throw & Go (Standard Patch)	Throw & Roll (Standard Patch)	Throw & Roll (Proprietary Patch)
Material price per ton	\$81	\$81	\$101
Material cost (20 tons)	\$1,624	\$1,624	\$2,023
Labor	\$845	\$1,126	\$1,126
Equipment	\$250	\$334	\$334
Initial cost - 1st trip	\$2,719	\$3,084	\$3,483
Survival rate	10%	25%	50%
# of potholes to re-fill	90	75	50
Cost of 2nd trip	\$2,447	\$2,313	\$1,742
# of potholes to re-fill	81	56	25
Cost of 3rd trip	\$2,202	\$1,735	\$871
Potholes remaining	73	42	13
Total Cost	\$7,368	\$7,131	\$6,095

Source :

Cornell Local Roads Program (CLRP)

http://www.clrp.cornell.edu/nuggets_and_nibbles/articles/2008/spend_to_save.html

Adjusting Iron



Infrared Patching



Infrared Asphalt Patching

- Surface distress repair - repairs the top 1" to 1-1/2"
- Soften existing asphalt area with infrared heat, rake in new material as needed, and compact
- Eliminates cutting out and hauling away deteriorated material
- Eliminates tack coating
- Result is a seamless repair?



Infrared Heater

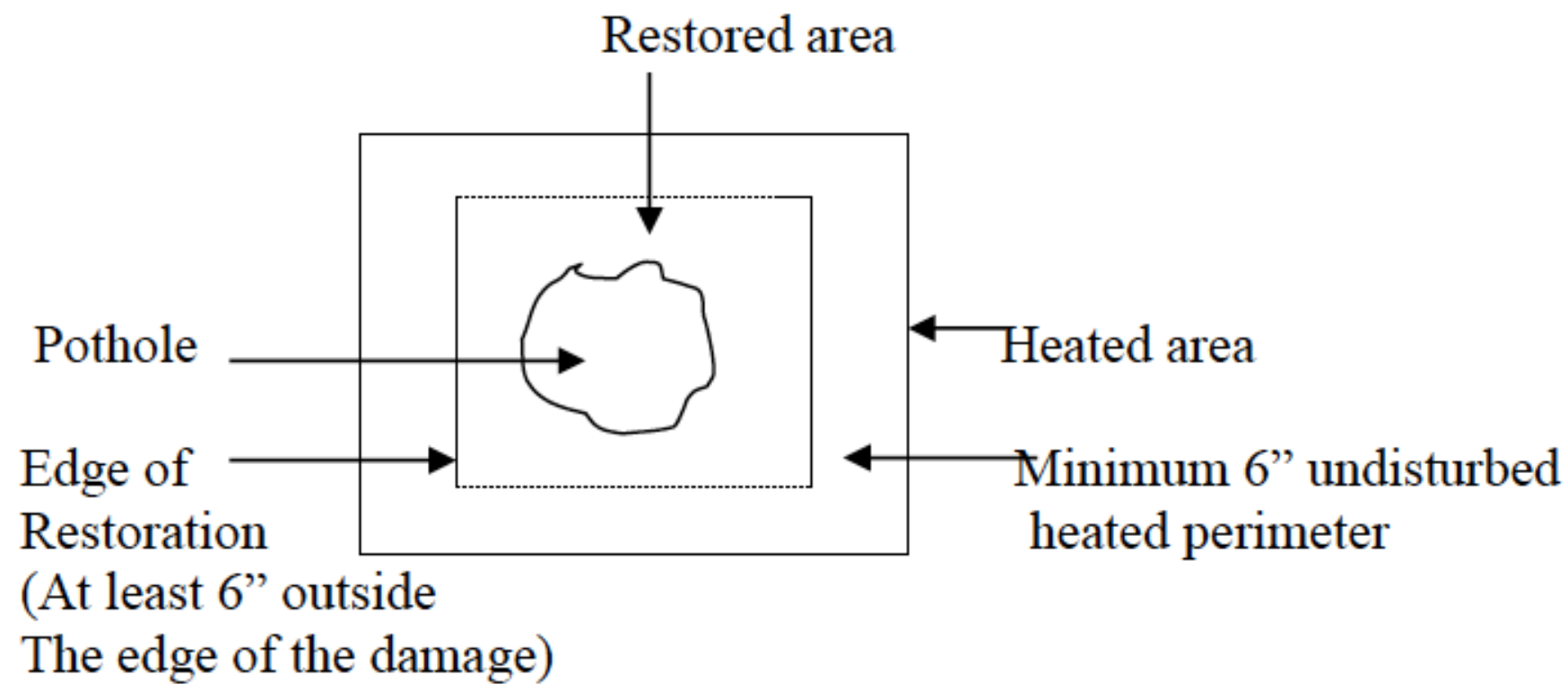


Heating the asphalt surface



To heat deeper, raise the heater further up from the pavement surface





New material can be added to the patch





Spray Injection Patching



Spray Injection Patching

- Cleans, tacks, fills and compacts with a one-person operation
- Was designed to replace cold patch for emergency adverse weather patching
- (Has shown to be effective for longer term “semi-permanent” patches)
- **“when spray injection systems are used for these repairs, patch life increases up to 21 months.”** - *Process Evaluation of Spray Injection Method for Asphalt Surface Repair Study*
SD97-06Final Report

Spray Injection Patching





Self-Contained Pothole Patching Units



Mix Trailers / Hot Boxes







Key Points

- Prepare the pothole to be patched.
- Apply proper tack application.
- Place patching material in patch.
- Compact in lifts if possible
- Smooth surface taking care not to leave patch high.
 - Slightly low final patches ride better than bump ups do.
- Compact in lifts if possible.
- Density is important to life of patch
- Use quality materials.
- Fog seal final patch.





THANK YOU