THPOA Road Maintenance:
Policies, Procedures and Guidelines

The Board of Directors (BoD) of the Twin Harbors Property Owner Association (THPOA) is responsible for the maintenance of all roads and parking areas within Twin Harbors on Lake Livingston.

THPOA Road and Parking Asset Summary

Roads:

The road system of approximately 6.6 miles is the largest asset of the THPOA. Twin Harbors on Lake Livingston has 3 entrances off of FM3186 and 3.4 miles of Entrance and Primary interconnecting roads, which have been identified by the Board of Directors and Polk County Precinct 2 Commissioner In addition, there are 3.2 miles of secondary and cul-de-sac roads which have a lower traffic-load.

Culverts and drainage ditches[1]:

Water is the chief road problem in Twin Harbors. Culverts are buried structures providing and opening under a roadway or private driveway for drainage purposes. A number of culverts cross our roads to aid in the flow of water. THPOA maintains these culverts and the drainage grades that parallel the streets. A large number of culverts are installed in private driveways as they join our road system and must work in conjunction with the maintained drainage grades at their location. The property owner is responsible for the maintenance of driveway and other culverts installed on their property.

Boat Launch Parking Areas:

THPOA maintains a primary boat launch and recreational parking area at the intersection of Lakefront and Whisperwood Drives. Road access to the THPOA Club House and its associated parking area are also the responsibility THPOA. These facilities are maintained for the use and enjoyment of all THPOA members. In total there are approximately 1600 sq. yards of parking area and access lanes maintained for the use of THPOA members. These areas will not be accepted by Polk County for subsequent maintenance work.

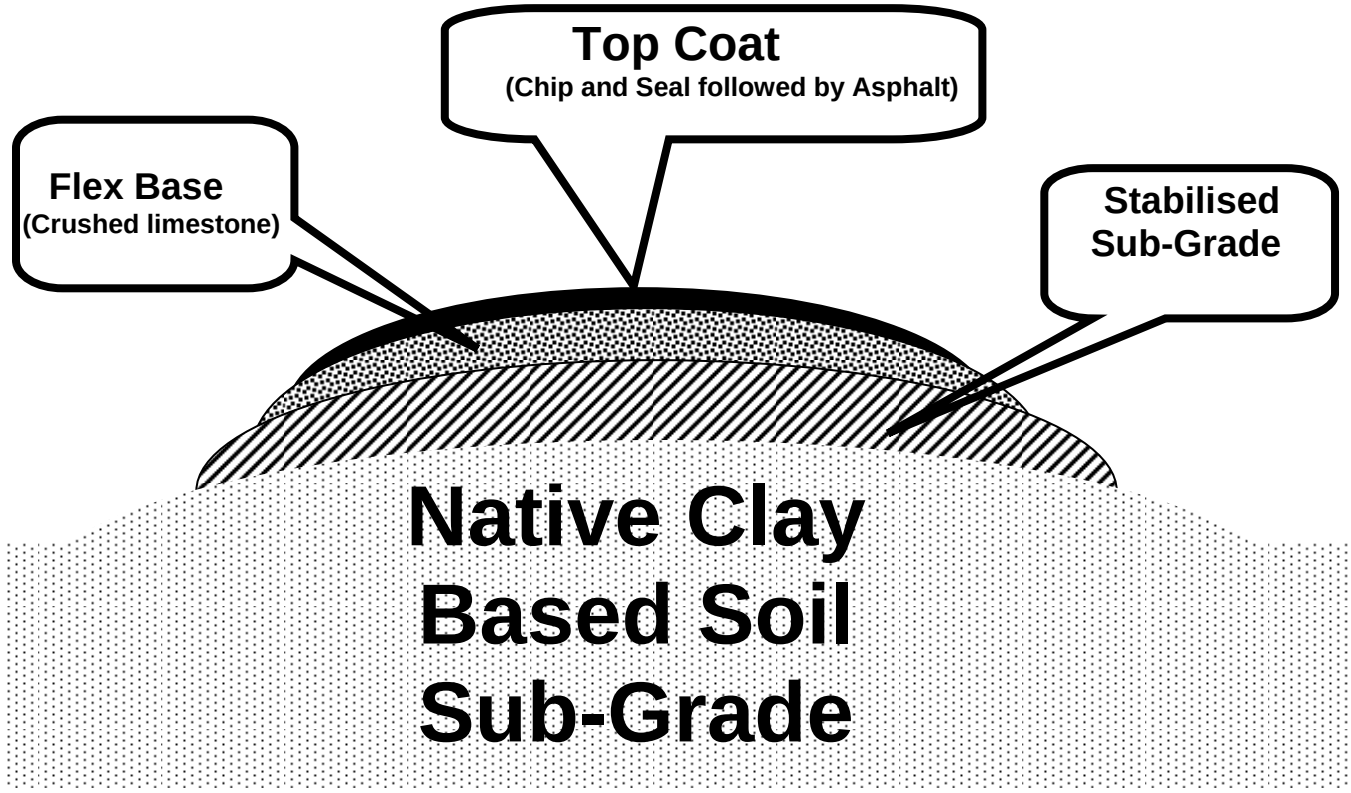
Trailer and Boat Storage Area:

Long term paid parking area for boats, trailers, travel trailers and recreation vehicles are maintained adjacent to the Club House facilities. This area is also used for the temporary storage of road base and repair materials. This area is to be maintained with road rock and will not be chip and sealed or asphalted.

[1] Action Item: Document existing Public and Private culverts, add drainage review to building permit process

Road Maintenance Basics

Roads are built from the ground up. A serviceable road in Polk County is constructed with 3 key layers over native soils: a clay sub-grade where needed over the native soil, followed by a flex-base of crushed rock or other suitable material, then sealed with a water barrier top coat to prevent water infiltration. In areas of high traffic, additional top coat layers of asphalt and chip and seal are applied to add additional structural integrity and prevent water infiltration, extending the longevity of the road (see figure below).



Together, these components form the pavement structure. The top coat is also called the surface course. The flex-base and stabilized sub-grade together are termed the subgrade. Where required this subgrade may have subgrade treatments; stabilizing material worked into the flex and or sub-grade.

The majority of the native soils in our subdivision are sandy loam and clay based soils. In the initial construction of Twin Harbors, the Developer utilized clay soils mined within the subdivision to build up the road level to achieve proper grade and ensure appropriate water drainage from the road surface. Evidence of this mining is the pit located off Moonlight Drive. Unfortunately this clay is of poor quality for forming a quality sub-grade, and has been partially responsible for much of our road maintenance challenges in the past.

In the Polk County area of Texas the flex base is typically constructed with crushed limestone or rocky cliché. Lime or Portland cement can be added to this to fully stabilize the foundation upon which a top coat is applied. Top coat is applied to the flex base. As stated in the 2004 TxDoT Seal Coat and Surface Treatment Manual: "The performance of a seal coat is, in part, governed by the structural adequacy of the underlying pavement layers"[2].

Two general types of top coat are commonly used by TxDoT and Polk County: Chip and Seal, and Asphaltic Concrete (commonly called asphalt). Chip and seal is a thin layer of asphaltic oils covered with a fine aggregate which is rolled into the oil layer. This top coat forms a seal to prevent water from entering and destroying the flex and sub bases. On top of this water seal layer, asphalt can be added in 1-1/2" to 2" layers to provide additional structural support. The layer of asphalt is NOT a water sealing layer, and subsequent topcoats of Chip and Seal are required to protect earlier overlays of asphalt and chip & seal, and subgrade below.

Road Maintenance Strategy

Partnership with Polk County:

To ensure the best use of our road work expenditures, maintenance policies and procedures consistent with the best practices and specifications of State and County agencies can be cost effectively implemented in Twin Harbors. Where possible, Polk County assistance will be sought to establish and maintain entrances, primary and high traffic secondary roads. If possible and where desired by the THPOA Board of Directors, Country assistance will be extended to all roads within the subdivision. By law, private parking areas and their access roads are not candidates for County assistance.

Long range road maintenance plans need to be maintained to deliver the best value to THPOA and greatest long term benefit to property owners. A long term road maintenance planning cycle has been recommended by the THPOA annual auditor to inform future Board of Directors of future liabilities. It has also been requested by our Polk County Precinct 2 Commissioner who represents his Twin Harbors constituents.

Entrances and primary roads that interconnect the subdivision provide access to shared facilities will have priority over lower traffic roads. These roads require more maintenance dollars due to their higher traffic loads, and are utilized by all property owners of Twin Harbors.

As required by Polk County, our entrances and primary roads are the initial focus of County road maintenance activities. The County policy is that County road assistance can only be applied to roads that connect to roads already maintained by the County.

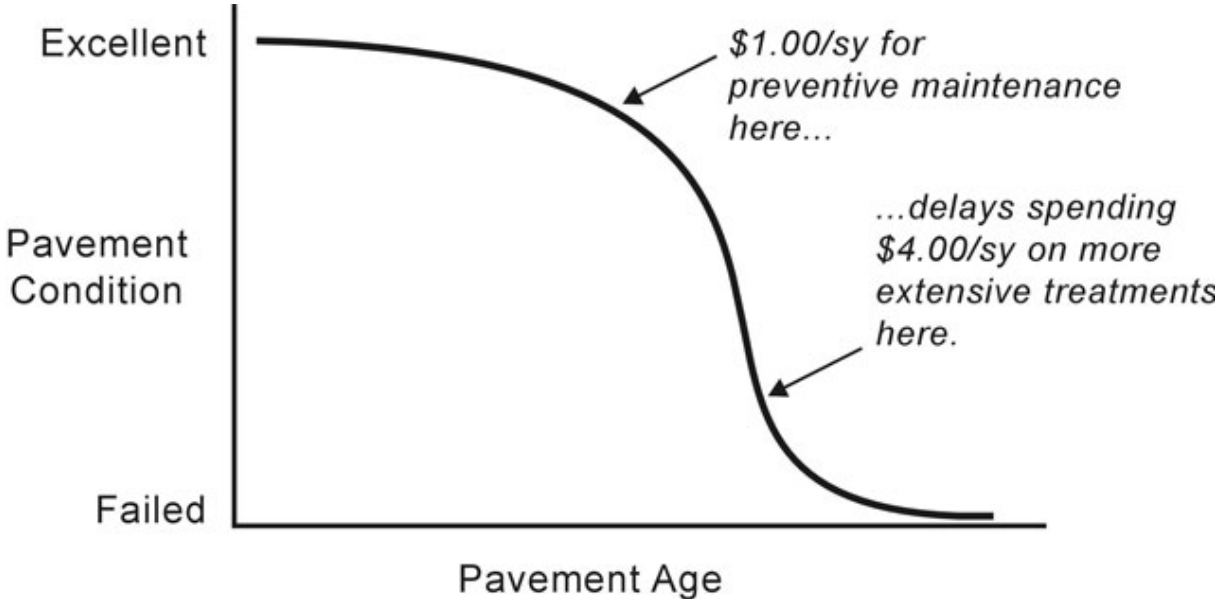
[2] TxDoT - Seal Coat and Surface Treatment Manual Section 2 page 17

Importance and benefits of timely maintenance:

Road life expectations will be increased and long term maintenance costs minimized by asphalting high traffic roads with proven stabilized road base. Subsequent overlays of asphalt will extend road life expectations such that by the 3rd overlay of asphalt on a residential road with traffic patterns such as ours can be expected to last 20 to 30 years, assuming prior chip and seal and asphalt overlays have not been allowed to decay to the point of jeopardizing the road flex and sub-grade due to water infiltration.

Extending the useful life of our Entrance and Primary Roads is the key to manage the long term financial viability of our road maintenance activities. Secondary roads, roads with less traffic, and cul-de-sacs will be chip and sealed following flex and sub-grade stabilization. Chip and seal must be done immediately following road base stabilization as it provides a water barrier that will protect the flex and sub-grade of the road.

Road maintenance costs can be minimized by protecting the road base. Road base repair costs can be 4 to 10 times the cost of asphalt or chip and seal top coats. See figure below:[3]



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Monies should not be spent on top coating our roads until the foundation underneath is adequately constructed. Once the top coat is in place, it must be properly maintained or the road foundation will fail due to water infiltration. As of 2012, subgrade reconstruction cost is approximately $36 per square yard, compared to asphalt topcoat at $8/sqyd, and chip and seal at $4/sqyd.

[3] The Concept of Preventive Maintenance from TxDoT Seal Coat and Surface Treatment Manual, page 15

Policies and procedures to insure continuity in future maintenance activities:

The maintenance of our roads is the largest annual expense item THPOA incurs, consuming in excess of over 60% of annual revenues validating that road work expenditures be appropriately, strategically, and consistently made.

It is for these reasons that road maintenance policies and procedures are implemented that represent best practices as established by State and County agencies which can be cost effectively implemented in a residential environment by local contractors. These policies and procedures must be followed by THPOA Board of Directors, or modified for review and approval at subsequent annual meeting of the attending membership of THPOA.

To ensure consistency in road expenditures, long range planning needs to drive the annual road work of Twin Harbors. This will provide annual expenditures that deliver the most value to the THPOA and accommodate the needs of property owners in a fair and transparent manner.

Road Maintenance Policies

- Entrances, primary and high traffic secondary roads within the subdivision will be transferred where possible to Polk County. Additional roads will be added as identified by the County.
- Annual road maintenance work will focus on top coating entire roads or segments of roads.
- The proper functioning of culverts crossing roads and drainage grades will be assessed and corrected before road segment maintenance
- Patching and pothole repair will only be done in conjunction with road top coat overlay programs. Temporary repairs with road rock and asphalt patching material will be done by the BoD utilizing road repair stockpiles maintained at the clubhouse parking lot, or via asphalt crack management by appropriate contractors
- Due to budget, materials prices, and schedule constraints, annual paving programs may need to be deferred and combined with budgeted funds for subsequent years as approved by the BOD
- An emergency road repair fund will be maintained to address critical road repair problems not addressed in the annual plan
- A priority scoring system that takes into consideration the amount of traffic, the condition of each road, and Polk County's willingness to share future maintenance expenses will be used to establish the priority of road maintenance work. Where appropriate, Board of Directors may also take into consideration prior road investments in calculating the priority score of each road.

- The BoD will focus on subdivision entrances, primary, and secondary roads, in this order, while adequately maintaining the remaining roads in the subdivision, ensuring that funds expended will be done in a fashion that benefits all property owners

Annual Road Maintenance Planning Requirements

The following road maintenance planning processes are the responsibility of the Board of Directors:

- To annually assess and document the state of repair of all roads within the subdivision. This information will be used to prioritize road repair activities.
- To update the Long Range Road Maintenance Plan based on current priority scores and from that plan develop a Current Fiscal Year Road Maintenance Plan based upon current budget constraints
- To meet with Polk County Prescient 2 Commissioner and review Current and Long Range plans, revise as needed and agree County participation for the current year.
- If the current year plan requires work outside of Polk County services, develop a Request for Price (RFP) for all work to be performed by for-profit service providers, submit RFP to identified vendors, review the responses to these RFPs, and select vendor(s) for the required services
- If the Polk County Prescient 2 Commissioner has agreed a scope of work for the current year, they will provide a written estimate. Once received, this estimate of County work should be brought to the BoD for review and approval. If approved, notation thereof should be included in the meeting minutes and a copy of those minutes submitted to the Prescient 2 Commissioner who will take it and his road work proposals to Commissioner's Court for review and approval
- To update and publish the Current Fiscal Year Road Maintenance Plan and Long Range Road Maintenance Plan on the THPOA web site and advise property owners of current year plans via The Winds
- the BoD initiates appropriate inspection activities to ensure the actions specified in the approved Current Fiscal Year Maintenance Plan are carried out

Road Maintenance Guidelines

General:

The development of the road work plans will be based on the following criteria:

- Traffic flow patterns
- Current road conditions
- Polk County Prescient 2 recommendations
- Prior paving investments, when appropriate

Based upon these criteria, the BOD will update and publish annually a Long Range Road Maintenance Plan which documents the current road conditions and prior road maintenance

investments. Once the BoD has approved the Long Range Road Maintenance Plan, a Current Fiscal Year Maintenance Plan will be developed by the BoD to guide current year road maintenance expenditures.

Requesting for Price (RFP):

When utilizing Polk County assistance, a RFP will NOT be required. Our Precinct 2 Commissioner will work with the BoD members to review the current road condition, impacts on the Long Range Road Maintenance Plan, and the Current Fiscal Year Maintenance Plan. Following any agreed changes to both plans, the County will provide a written estimate of the costs for completing the Count portion of the Current Fiscal Year Maintenance Plan.

When not utilizing Polk County assistance, the BoD will develop a Request for Price (RFP) for all work required to be performed by suppliers or contractors specific actions in the Current Fiscal Year Maintenance Plan. This RFP will clearly state the nature and scope of work to be performed, including specific material and/or processes which will be required in the project, as well as the required time frame. The RFP should require that materials used must meet State and County specifications and that the amount of material to be used be documented in the contractors response.

Using the RPF, the BOD shall seek to obtain a minimum of three responses to the RFP by communicating the request to an appropriate number of suppliers who the BoD feel can perform the needed work.

The BoD will seek to develop long term relationships with proven suppliers, while assuring fair market prices through its bidding process

Inspection of Contracted Work:

All contracted road maintenance will be monitored by BoD members, or hired inspectors throughout the contract term. The volume of materials used by the contractor will be determined to insure contract terms are adhered to.

Road Work Specifications and Procedures

The following are job and material specifications, to be used by the RD in all maintenance and improvement projects. These specifications and procedures are based on the State of Texas, Department of Transportation roadwork specifications[4]. These specifications will be used in all work and processes to ensure that intended work is consistent with the appropriate criteria. Polk county specification for the acceptance of roads consistent with the Polk County road maintenance program will supersede TXDOT specifications, where required. The following policy guidelines will be followed in assessing and performing the appropriate roadwork:

Procedures:

1. A catalog of roads will be maintained by the Road Work History and Status Report. Longer roads will be divided into segments allowing for complete resurfacing of that road or road segment. These road segments will be clearly defined in the Road Work History and Status Report and be maintained consistently from year to year, unless additional subdividing is required.

2. The focus of road maintenance will be top coating entire roads or long stretches of contiguous roadway and not random patching and pothole repair. With time, this strategy will eliminate the need for road base repairs.

3. Patch work will not be done unless it is part of a general repair of the flex base prior to any top coating activities of large contiguous stretches of road way. Potholes will be repaired when required using road repair materials stockpiled at the Clubhouse until such time as the road section containing the damage can be maintained as a whole

4. All roads, or sections of roads, shall be classified by road usage by the following criteria to develop the Road Usage Score:

Road Usage Score	**Value**
Entrance and roads feeding primary roads	**4**
Primary roads	**3**
Secondary roads and Cul-du-Sacs with houses	**2**
Cul-du-Sacs with no houses and roads of little current use	**1**

5. The following criteria and score will be used to assess road of each road or road section:

Road Condition Score	**Value**
Top coat and flex base generally missing, sub-grade damaged, sever rutting	4.0
Chip and Seal top coat 7 years old or extensive flex base repair required	3.5

[4] Texas Standards and Specifications for the Construction of Roads and Bridges (TxDoT Stds. & Spec.), published 2004

Asphalt surface indicates major rework of flex base prior to new overlay	3.5
Chip and seal surface 6 years old or with pot holes and sub base problems	3.0
Asphalt surface potholed and deformations in flex base frequently visible	3.0
County Road 5 years old	3.0
Chip and Seal top coat 5 years old, or potholes & alligator cracking common	2.5
Asphalt surface with many cracks but with some surface depressions	2.5
County Road 3 to 4 years old	2.5
Chip and Seal top coat 4 years old or with surface depressions developing	2.0
Asphalt surface with minor cracks and surface depressions developing	2.0
County Road 2 years old	2.0
Chip and Seal top coat 3 years old or with minor surface blemishes	1.5
Asphalt top coat fully bleached, chip and seal surface 3 years old	1.5
County Road 1 year old	1.5
1 to 2 year old top coat or Road taken over by County	1.0
A road top coated in the current fiscal year	0.0

6. A prior paving investment score will be developed using the following criteria:

Prior Road Investment Score	**Value**
Roads with two or more overlays of Asphalt	**3**
Roads with County installed Flex and Sub Bases	**2**
Roads without County maintained Flex and Sub Bases	**1**

7. The maintenance priority of each road or road segment shall be calculated annually by multiplying the condition score factor and the road class rating factor to yield a road maintenance priority score between **0** and **48 with 0** being the lowest priority and **48** the highest priority:

   Priority Score = Usage x Condition X Investment

8. Where Polk County maintenance preferences are not specific the Priority Score shall be the primary driver in developing and updating the annual Long Range Road Maintenance Plan. Secondary consideration should be given to top coating contiguous road sections and recent or planned Polk County road work in the sub-division

9. Roads classed a 1, 2 or 3 shall be maintained to a minimum top coat width of 16 feet wide.

10. Roads classed a 4 shall be maintained to a minimum top coat width of18 feet wide.

11. The cause of any road failure should be determined prior to any maintenance planning activity.

12. Prior to any road top coat overlay (chip and seal or asphalt), problems with the sub-grade and/or flex base shall be addressed.

13. Damage due to drainage and culvert problems must addressed prior to any road maintenance or repair.

14. Roads which undergo extensive repair of their flex base shall be top coated with chip and seal prevent water infiltration into the subgrade. Where traffic flows are high, this will be followed at a future time with a top coat of asphalt as budget and competing road priorities dictate. At no time should existing asphalt top coats be allowed to fail and the subgrade will have to be reconstructed prior to subsequent top coat applications

15. All topcoat overlay programs that terminate at road intersections must continue a minimum of 15 feet past the intersections and into the intersecting road.

16. It is the goal of the THPOA to asphalt all roads over time, and once asphalted, a chip and sealed topcoat may be needed to ensure a water barrier is maintained prior to subsequent asphalt overlays.

17. A means of ensuring continuity of maintenance plans and methods needs to be devised by the BoD

Procedural Steps and Costing Examples for Specific Road Maintenance Steps:

Step 1: Correction of Drainage and Culvert Problems

- Prior to any road maintenance activity, assess site for drainage problems
  - Identify any areas of standing water at culverts crossing roadways, along roadways in drainage grade or at property owner driveway or other access culverts, or other drainage /culvert issues
  - Identify root cause of problem, seek County assessment if required. If
- If problems exist, correct drainage ditches and culvert.
  - If Property owner responsibility must be assessed
- Do not initiate any road section maintenance, other than emergency pothole repair until drainage/culvert problems have been rectified
- Ref appropriate Sections of Texas Standards and Specifications for the Construction of Roads and Bridges, 2004
- Seek County assistance in correcting drainage and culvert problems where possible

Step 2: Stabilization of Sub-Grade as Needed

- Ref Section 204-263 Texas Standards and Specifications for the Construction of Roads and Bridges, 2004
- Seek County assistance in re-establishing the Sub-Grade, where this cannot be accommodated:
- Treat with appropriate stabilizer as defined in TxDoT Stds. & Spec. Ref Sec #260 to a minimum depth of 6 inches
- Plasticity for sub-grade to range between 4 and 18 PI subsequent to treatment
- Sub-Grade Work Parameters:
  - Final sub-grade width 24’ to 26' minimum for Class 4 roads
  - Final sub-grade width 22’ to 24' minimum for Class 1, 2 and 3 roads
  - Road Shoulder width 2' minimum of either side
- Seek current price quote per cubic yard of Sub-grade materials via the RFP process defined below
- Example of Approximate Stabilizer Material Volume and Cost Calculations:
  - 8% Lime to a depth of 6”
  - Width of 22'
  - Length of 0.44 mile, or 2323 feet
  - Thickness of 0.04’ (8% of ½’)
  - 27 cubic feet per cubic yard
  - Calculation is (22 * 2323 * 0.04) / 27
  - 76 cubic yards of stabilizer material per Class 1 delivery standard of materials
  - *Assuming $30.00 per cubic yd per TX DOT Spec Cost Est.* = ***$2,280***
- Seek current price quote per square yard of sub-grade application via the RFP process defined below
- Example Approximate Stabilizer Material Installation Cost Calculations:
  - Width of 22'
  - Length of 0.44 mile, or 2323 feet
  - Area Calculation is (22 * 2323) / 9

- 5678 square yards of stabilizer material application
- *Assuming $4.00 per square yd per TX DOT Spec Cost Est. =* ***$22,713***

Step 3: Installation of Flex Base as needed

- Ref Section 204-263 Texas Standards and Specifications for the Construction of Roads and Bridges, 2004
- Seek County assistance in re-establishing the Flex Base, where this cannot be accommodated:
- Material to consist of Type A Grade 2 Limestone as defined in TX Stds & Specs Ref Sec #247
- Material to be paid per Class 1 Delivery as defined in TX Stds & Specs Ref Sec #247
- Final minimum compaction thickness of no less than 6 inches with a minimum density of 95% as defined in TX Stds & Specs Ref Sec #247
- Flex Base Work Parameters:
  - Final flex base width 24' minimum for Class 4 roads
  - Final flex base width 22' minimum for Class 1, 2 and 3 roads
- Seek current price quote per cubic yard of Flex Base materials via the RFP process defined below
- Example of Approximate Flex Base Compacted Material Volume and Cost Calculations:
  - Width of 18'
  - Length of 0.44 mi, or 2323 feet
  - Thickness of 6"
  - 27 cubic feet per cubic yard
  - Compaction factor .66
  - Calculation is (18 * 2323 *0.5) / (27 * 0.66)
  - 1173 cubic yards of un-compacted flex base material per Class 1 delivery standard of pre-compacted flex base
  - *Assuming $8.00 per cubic yd per TX DOT Spec Cost Est. =* ***$9,384***
- Seek current price quote per sq yard of flex base application via the RFP process defined below
- Example of Approximate Flex Base Installation Cost Calculations:
  - Width of 18'
  - Length of 0.44 mi, or 2323 feet
  - Calculation is (18 * 2323) / 9
  - 4646 square yards of flex base material application
  - Assuming $6.00 per square yd per TX DOT Spec *Cost Est.* = **$27,876**

Step 4: Pothole Repair and the Installation of Patches as needed(TXDOT 700.3)

- Ref Section 700 Texas Standards and Specifications for the Construction of Roads and Bridges, 2004
- Refer to Step 1 to asses root cause of road failure at the location of the pothole or failing section and take appropriate action before or concurrent with the repair.
- Patches and road base (Sub and Flex) will be made immediately prior to all top coat overlay programs and only under an emergency basis for potholes and failure areas not in the immediate or subsequent years 5-Year Plan.

- **Standard Repair.** Remove loose and foreign materials from the repair area. Remove water, dry, and apply tack coat to surfaces of the repair
  - **Repair steps for roads not to be immediately overlayed:**
    - Remove loose and foreign materials from the repair area
    - For Asphalt roads, apply TXDOT "Miracle Mix", from THPOA stockpile (or purchase required bulk volume for multiple area repairs), compact with vehicle traffic
    - For Chip and Seal roads, apply Type A Grade 2 Limestone from THPOA stockpile (or purchase required bulk volume for multiple area repairs), compact with vehicle traffic
- **Saw-Cut Repair**. Square the sides of the repair area by saw-cutting or other approved methods. Remove loose and foreign material. Clean and dry the repair area. Apply tack coat to surfaces of the repair area unless otherwise directed. Place repair material in horizontal lifts no more than 3 in. deep. Finish to grade and compact to conform to roadway surface. Compact with hand tamp, mechanical tampers, or rollers as directed or approved. Compact to achieve full consolidation. Repair pavement edges to the line and grade of original pavement. Clean roadway surface after repair operations. Dispose of materials removed as directed or approved.

Step 5: Cleaning and Sealing Joints and Cracks

- Ref Section 712 Texas Standards and Specifications for the Construction of Roads and Bridges, 2004
- **Materials.** Furnish materials unless otherwise shown on the plans. Furnish sealant materials as shown on the plans in accordance with Item 300, "Asphalts, Oils, and Emulsions." Furnish an approved fine aggregate.
- **Work Methods.** Clean and seal joints and cracks that are 1/16 in. or greater in width. When required, rout joints and cracks to the configuration shown on the plans. Clean joints and cracks with air blast cleaning or other acceptable methods to a depth of least twice the joint or crack width. Joints and cracks must be free of moisture before sealing. Dispose of materials removed as directed or approved. Apply sealing material with a pressure nozzle. Completely fill cracks and joints. Squeegee material to no more than 3 in. wide and 1/8 in. above the pavement surface. Prevent tracking with an application of fine aggregate as directed.

Step 6: Installation of Chip and Seal Top Coat

- Ref Section 300 Texas Standards and Specifications for the Construction of Roads and Bridges, 2004
- Chip and Seal top coat is applied to new Flex Base surfaces, and to existing Asphalt top coats protect and seal from water infiltration
- Schedule an appropriate on delay between installation of Flex Base and Top Coat to allow rain and traffic to aid in additional compaction
- Chip and seal is not to be applied if the road has an existing asphalt top coat – move to Step 6 below
- Seek County assistance in applying the Chip and Seal Top Coat, where this cannot be accommodated:

- Seek current price quote per sq yard of chip and seal top coat via the RFP process defined below
- Plan to a minimum of 15 feet beyond and into all intersecting roads
- Example Chip and Seal Top Coat Cost Calculations
  - Width of 18'
  - Length of 0.44 mi, or 2323'
  - Calculation is (18 * 2323) / 9
  - Area of 4646 Square Yards
  - *Assuming $5.00 per sq yd per TX DOT Spec Cost Est.* = ***$23,230***

Step 7: Installation Asphalt Top Coat

- Ref Section 334-340 Texas Standards and Specifications for the Construction of Roads and Bridges, 2004
- Asphalt is to be applied to either a chip and seal or prior asphalt top coat
- Seek current price quote per sq yard of Asphalt top coat via the RFP process defined below
- Plan to a minimum of 15 beyond and into all intersecting roads
- Example Asphalt Area and Cost Calculations (materials and :labor)
  - Width of 18'
  - Length of 0. 44 mi, or 2323'
  - Area of 4646 Square Yards
  - *Assuming $8.00 per sq yd per TX DOT Spec Cost Est.* = ***$37,168***

Step 8: Inspection of Materials and Work

- Polk County maintenance – TxDoT materials and methods are required by county procedures, therefore inspection NOT inspection required.
- If private contractor is hired to perform maintenance activates both materials and final work must be assessed.
  - For subgrade work and top coat, proof that materials meet TxDoT specifications must be provided by the contractor. Copies of which must be made and filed and maintained for 4 years.
  - For subgrade work and top coat, volume of needed material as estimated in the RFP and accepted proposal must meet
  -

For Consultation Contact:

1. **Texas Department of Transportation (TxDOT),** Livingston Office US59 North Kevin L. Harbuck P.E. Area Engineer, Polk and San Jacinto Counties, Lufkin District 936 327-8981; e-mail: kharbuc@dot.state.tx.us
2. **TxDOT Web Site** www.dot.state.tx.us : go to "Contact Us" and select "Construction" as the recipient of the question(s). TxDOT will respond via e-mail or US Mail.
3. **Polk County Commissioner's Office of Roads and Bridges**, Livingston/Onalaska

Local Road Work Contractors List:

1. **CCC Construction**, Onalaska, 646-3684, 800-646-2817
2. **Janes Asphalt Paving**, Possum Walk Rd, Huntsville TX, 936-293-8581
3. **Waters Construction Company Inc.**, Hwy 190 E, Huntsville TX, 936-291-2561
4. **A-1 Paving & Construction**, PO BOX 2093, Conroe TX 77305, 800-324-6625
5. **L & C Construction**, Cleveland TX, 281-399-0590
6. **Pavers Supply Company**, Hwy 190 E, Huntsville TX, 936-291-6169
7. **Hanson Aggregate,** Huntsville TX, 936-295-4713

Current Population Densities in areas of Twin Harbors:

Definitions:

Pavement. That part of the roadway having a constructed surface for the use of vehicular traffic

Pavement Structure. Combination of surface course and base course placed on a subgrade to support the traffic load and distribute it to the roadbed.

A. Surface Course. Pavement structure layers designed to accommodate the traffic load. The top layer resists skidding, traffic abrasion, and the disintegrating effects of climate and is sometimes called the wearing course.

B. Base Course. One or more layers of specified material thickness placed on a subgrade to support a surface course.

C. Subgrade. The top surface of a roadbed upon which the pavement structure, shoulders, and curbs are constructed.

D. Subgrade Treatment. Modifying or stabilizing material in the subgrade.