NC STATE UNIVERSITY

Understanding TDTIMS

What is TDTIMS?
Why Do We Do It?
Importance of Accurate TIMS Data
Preparing for TDTIMS
Submitting TDTMS

ITRE
Institute for Transportation Research and Education

NC STATE UNIVERSITY

Understanding TDTIMS

- TDTIMS is an Annual Audit (or comparison) of your "computerized" Bus Routes to the "real world" Bus Routes within your district.
- There are 4 Specific Measures used to compare:
  - 1) Daily Number of Buses
  - 2) Daily Number of Student Riders
  - 3) Daily Bus Miles
  - 4) Daily Driver Hours
- Each of these computerized measures must meet at least 90% of the official "real world" numbers reported to NCDPI.

NC STATE UNIVERSITY

Understanding TDTIMS

- Your computerized Bus Routes should be a nearly perfect representation of what your buses are doing\should be doing throughout a typical school day.

This includes…

- The location of where buses park during school hours and where they park overnight.
- The location of each bus stop, in the correct order, from begging to end, for each Bus Run and Bus Route.
- The approximate time at each stop (give or take a few minutes)
- Each stop also needs the correct students assigned so that Passenger Lists are accurate and can be relied upon by your district

NC STATE UNIVERSITY

Understanding TDTIMS

- The information you submit in the Annual TDTIMS Report is used to help determine your LEAs Annual Budget Efficiency Rating.
- The Efficiency Rating examines your Transportation Operations as a whole (Buses, Riders, Staff, Salaries, Parts, Supplies, etc.) and uses the results to allocate the amount of funding you will receive the following school year.
- If your computerized TIMS Routes do not represent what your buses are doing, then your Efficiency Rating may not be accurate and could lead to decreased funding for next year.*

**If TIMS Data does not represent typical daily routes and ridership, then your LEA is severely limited in your ability to use TIMS to properly preplan bus routes for the start of school as well as manage changes during the year to solve potential routing problems and make efficiency improvements.*

NC STATE UNIVERSITY

Understanding TDTIMS

- Having precise Student Assignments to Bus Stops is very important.
- One of the key figures used in allocating your annual funding is the Student to School Distance for Assigned Bus Riders
  - The closer students live to school, the lower cost per rider
  - The farther students live from school, the more expensive cost per rider
- So it is important to have the correct students assigned to each stop and each stop on the correct bus route.
- Make sure your TIMS is accurate and…
- GET CREDIT FOR THE HARD WORK YOU DO

NC STATE UNIVERSITY

Understanding TDTIMS

The Annual TDTIMS Audit compares your computerized bus routing data, in TIMS, to the data submitted to NCDPI as part of The TD2 and TD2-R

The **TD2-R Deadline (Driver Time & Miles) was Friday October 15th** with some LEAs having requested and received an extension.

The **TD2 Deadline (Student Headcounts) is Monday November 15th** with some LEAs anticipating having to request an extension.

Lets look at the TD2 and TD2-R Reports so you can better understand the information collected and submitted to NCDPI.

NC STATE UNIVERSITY

TD2 – Student Headcounts

The annual TD2 Report, sometimes known as the Student Headcounts Report, is an average total of your daily bus riders as typically collected during the last week of September. For this year, LEAs are being given the flexibility to choose the best week(s) to complete student counts for each school.

We compare your Average Total Daily Riders from the TD2 to your Assigned Riders in TIMS.

NC STATE UNIVERSITY

TD2 – Student Headcounts

The Unit Summary Page of the TD2 contains the data we compare to the Assigned Bus Riders in TIMS

Grand Total – Number of Students Transported (Non-PK)

A. REGULAR BUS RUNS (HOME TO SCHOOL)		
1. TOTAL NUMBER OF STUDENTS TRANSPORTED ON REGULAR BUSES		3959
2. How many of these are Pre-K Students?	6	
3. TOTAL NUMBER OF STUDENTS TRANSPORTED ON EXC. CHILD. BUSES		123
4. How many of these are Pre-K Students?	24	
5. GRAND TOTAL - NUMBER OF STUDENTS TRANSPORTED (1 + 3)		4079

The "real world" student headcounts total from the TD2 is compared to the Total Assigned Bus Riders from TIMS. The two totals should be in the "same ballpark" as each other, indicating the Assigned Riders from TIMS accurately represent true daily ridership totals as collected by student headcount procedures.

NC STATE UNIVERSITY

TD2-R : Daily Driver Time & Bus Miles

The annual TD2-R Report lists each Bus typically operated on a daily basis, the typical daily Miles for each bus(from the Odometer, GPS system or as reported by the driver) as well as the typical daily hours paid to each of your drivers.

Understanding that daily miles and daily driver hours will change some days based on student absences, early dismissal and other route changes; but in general there is a value for typical daily miles and typical daily payroll hours for each bus and bus driver.

LEAs can use GPS Data to examine daily miles over the last few weeks, and after removing the extremely high or low values, the most common and consistent daily miles should become clear. The same methods can be applied to daily payroll reports from the last few weeks as well.

Again, you are trying to capture the typical daily miles and typical daily payroll hours for each Bus and Bus Driver.

We compare the Total Number of Buses, Miles and Driver Hours from the TD2-R to the Total Buses, Planned Miles and Planned Hours in TIMS.

NC STATE UNIVERSITY

TIMS Data – Total Bus Miles

- In addition to student data, TDTIMS calculates total bus miles traveled by all computerized bus routes in TIMS.
- These figures can be extremely accurate when TIMS data matches the Bus Routes being performed by Bus Drivers each day.
- TIMS Data must contain the following:
  - Correct Bus Parking Locations
  - Correct Stop Locations and Stop Order
  - Correct Street Path of Travel
  - Correct Bus Turnarounds
- Please ensure drivers are following your TIMS Driving Directions and\or that your TIMS Routes match what the schools and drivers report they are doing.

NC STATE UNIVERSITY

TIMS Data – Driver Hours

- In addition to student and mileage data, TDTIMS calculates total expected daily driver hours estimated by your computerized bus routes.

- This is often the most common measure LEAs have trouble meeting 90% of their official numbers reported to NCDPI.
    - Bell Times and especially the Early/Late Transportation Windows in TIMS can impact this calculation.
    - Correct Road Speeds and other Map Calibrations will increase/decrease the accuracy of your driving time estimates.
    - Also, the way drivers are paid (timesheets, time clocks, GPS) may cause differences between TIMS estimates and payroll hours.

- These figures can be extremely accurate if TIMS is used correctly and drivers are paid accurately for the time they are working each day.

NC STATE UNIVERSITY

TD2-R : Summary Page Information

The TD2-R Summary Page contains the data that we compare to TIMS.

- *Total Number of Buses*
- *Daily Route Hours*
- *Daily Route Mileage*

CALCULATED FIELDS	NUMBER BUSES	ROUTE HOURS	DAILY RATE	LEAVE HOURS	LEAVE COMP.	ROUTE MILEAGE
LEA TOTALS FOR REGULAR BUSES	92	284.01	$ 3,243.74	4129.0	$ 51,787.09	4903.5
LEA TOTAL FOR EXCEPTIONAL CHILD BUSES	12	109.2	$ 1,322.67	2787.6	$ 34,258.44	1010.4
LEA GRAND TOTALS	104	393.21	$ 4,566.41	6916.6	$ 86,045.53	5913.9

The "real world" total of Buses, Daily Miles and Daily Hours from the TD2-R is compared to the Total Routes in TIMS and the expected Total Daily Miles and Daily Driver Hours based on the Bus Routes within TIMS.

NC STATE UNIVERSITY

Why do we compare TIMS Data to the TD2 and TD2-R?

The Student-to-School Distance Data from TIMS is used in the LEA funding formula to help calculate the annual transportation allotment (PRC-56) for your district. Each LEA and DPI need this information to be as accurate as possible to ensure proper funding is distributed to each county.

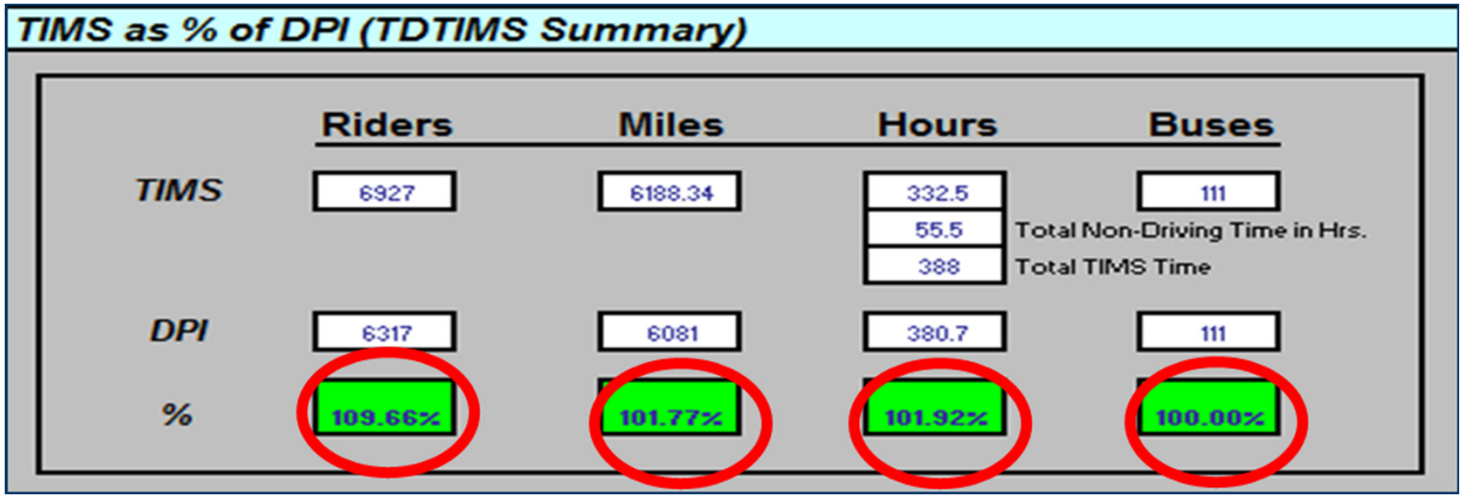
Therefore, we compare planned bus route data from TIMS to "Real World" Data from the Headcounts, Reported Daily Miles and Reported Daily Payroll Hours to ensure TIMS Information closely matches what is actually occurring on the roads each day.

If the four measures (Buses, Assigned Bus Riders, Miles and Hours are all in the "same ballpark", then the Student-to-School Distance from TIMS is deemed valid, accurate and can be applied to the annual funding formula.

NC STATE UNIVERSITY

TDTIMS Data Comparison

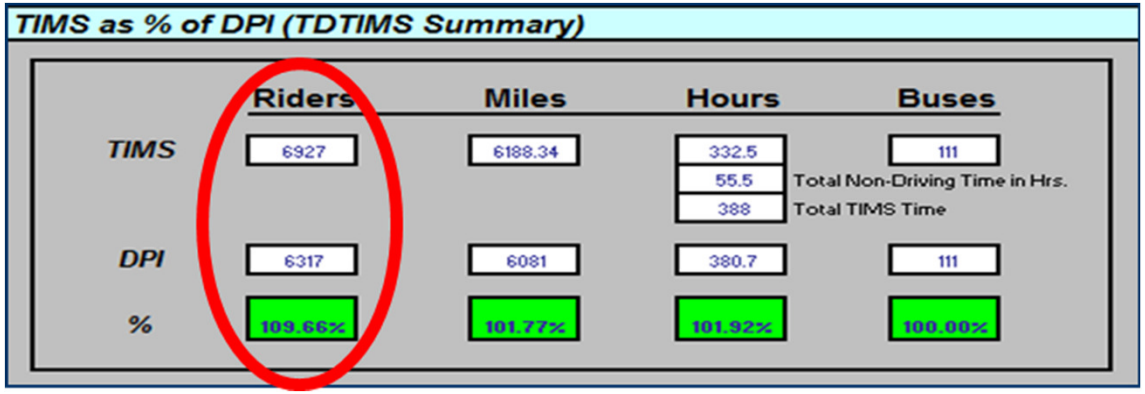
The number of Assigned Students, Daily Miles, Daily Hours and Daily Buses Operated in TIMS must, at a minimum, meet 90% of the numbers submitted to NCDPI on the TD2 and TD2-R



Let's look at each measure in more detail to better understand what the numbers suggest.

NC STATE UNIVERSITY

TDTIMS Ridership Comparison



In this example, TIMS shows 6,927 daily riders and the TD2 showed an average of 6,317 each day during Students Counts Week. The difference of 610 riders averages out to less than 6 students per bus who are assigned in TIMS but may not have ridden during students count week.

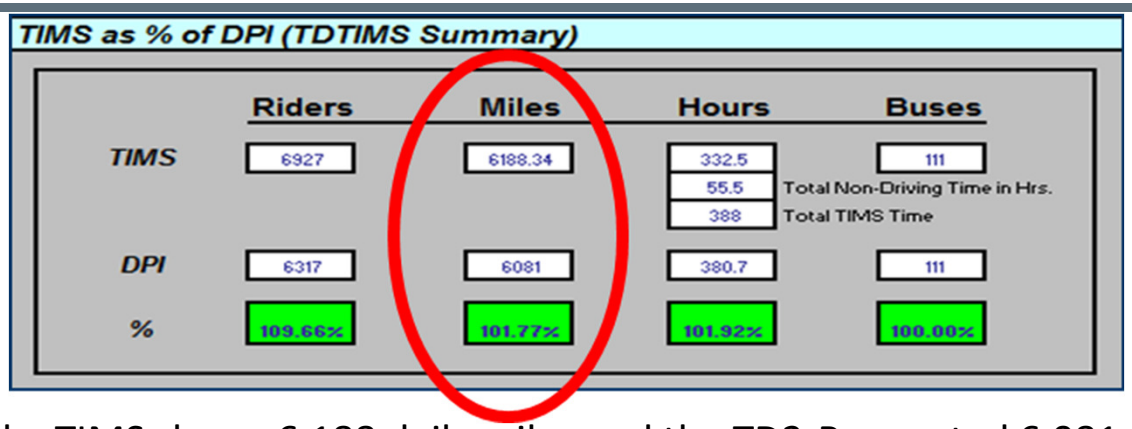
Hint: If you maintain accurate data, your Assigned Riders in TIMS should ALWAYS be slightly more than your actual Daily Riders.

- *Good Example: TIMS has 62 students assigned but only 55 ride everyday via headcount totals.*
- *Bad Example: TIMS has 50 assigned but headcounts show 60 students.*
  - *Who are the extra 10 students riding the bus?*
  - *TIMS should never be lower than Headcounts*

ITRE

NC STATE UNIVERSITY

TDTIMS – Miles Comparison



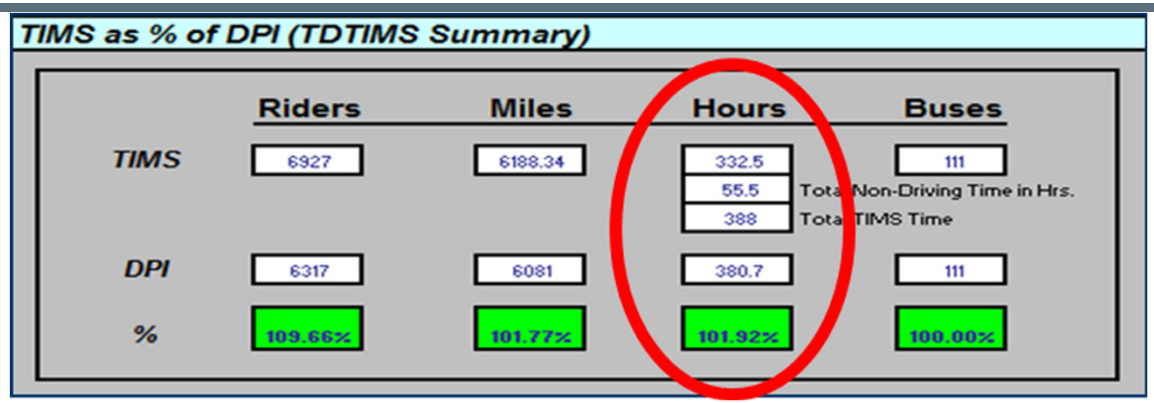
In this example, TIMS shows 6,188 daily miles and the TD2-R reported 6,081 daily miles for the entire bus fleet. The difference of 107 miles averages out to less than one-mile per bus. This is perfectly fine as there may have been student(s) absent and so the driver did not have to travel all roads and stops each day, causing fewer "real world" miles put on the bus.

Hint: If you maintain accurate data, TIMS Miles should ALWAYS be slightly more than actual Daily Miles.

- *Good Example: TIMS has 62 miles planned and typical GPS readings show 59 to 63 miles daily*
- *Bad Example: TIMS has 50 miles planned but GPS typically shows 62 to 72 miles daily*
  - *Are drivers deviating from the planned route? Maybe taking the long way home?*
  - *Did schools or drivers change the route and not inform TIMS Staff?*
  - *TIMS miles should never be significantly less than Daily GPS Miles.*

NC STATE UNIVERSITY

TDTIMS – Hours Comparison

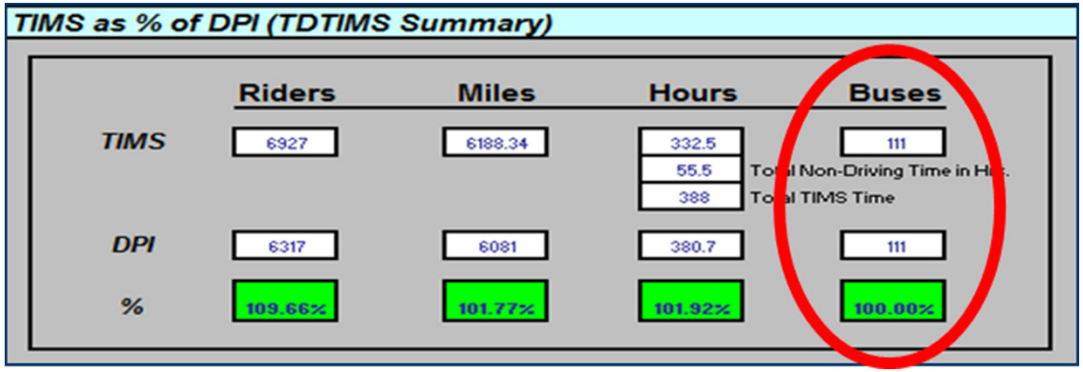


In this example, TIMS shows planned bus routes should produce up to 388 Daily Driver Hours and the TD2-R reported 380.7 Daily Driver Hours from Payroll. The difference of 7.3 hours equals 438 min, which averages out to less than 4 minutes difference per bus.

- *Good Example: TIMS has 3.2 hours planned driving time, with 30min non-driving time paid per bus, or 3.7 hours daily. Typical Payroll Hours show 3.4 to 3.9 hours daily*
- *Bad Example: TIMS has 3.2 driving hours planned with 30min non-driving (3.7 hours) but Payroll typically shows 4.5 to 5.0 hours daily.*
  - *Are drivers deviating from the planned route? Maybe taking the long way to\from the Time Clock?*
  - *Do drivers work another job in the school system? Are Cafeteria, Custodian and Teacher Assistant hours being paid incorrectly from Transportation Funds?*
  - *Payroll Hours should never be significantly more than expected daily hours from TIMS.*

ITRE

TDTIMS – Bus Comparison



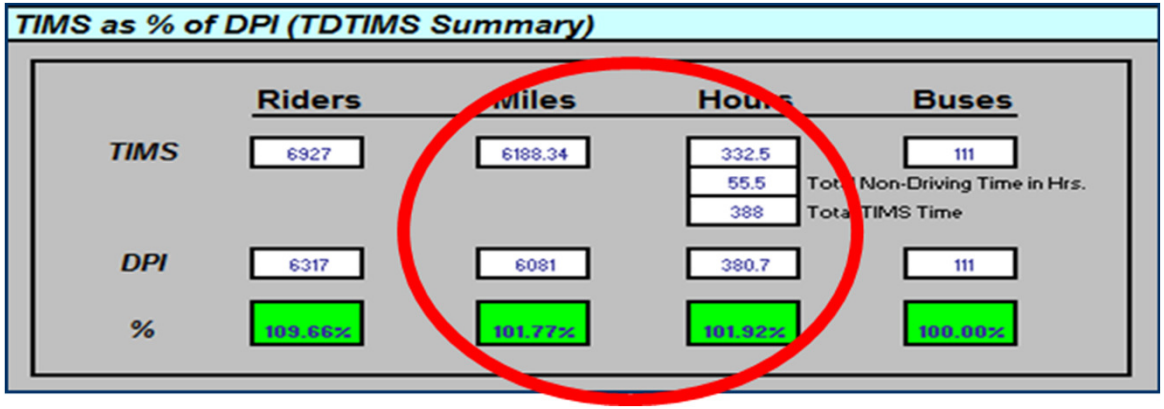
In this example, TIMS shows 111 buses are operated daily while the TD2-R shows the same 111 buses in daily operation.

Hint: Bus comparisons should always be 100% unless a bus was added or removed after the TD2-R was turned in during October and before TDTIMS is submitted in November.

Ideally, TDTIMS will be submitted close enough to the TD2 and TD2R so that the number of buses exactly match between TIMS, the TD2 and the TD2R.

NC STATE UNIVERSITY

TDTIMS – Consistent Miles & Hours Comparison



In this example, both comparisons (miles and hours) are off by the same approximate percentage (101.77% and 101.92%)

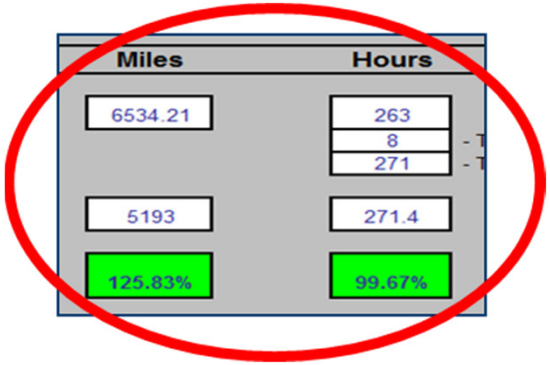
Hint: If either piece of data (Bus Miles or Driver Hours) are Above/Below 100%, then you should expect the other piece of data to be off by the same percentage.

If planned mileage data is showing 100 extra miles, then the planned driving hours will also include the extra time estimated to drive 100 more miles in TIMS.

ITRE

NC STATE UNIVERSITY

TDTIMS – Inconsistent Miles & Hours Comparison



In this example, the Driver Hours comparison is nearly perfect as TIMS Data show 271 Driving Hours and Payroll shows 271.4 Paid Hours Daily. (99.67%)

The Miles comparison raises a lot of questions as TIMS shows 6,534 Miles being Driven Daily, but the Odometer Mileage shows just 5,193 miles (125.83%). The additional 1,341 miles in TIMS does not make sense, especially when you consider the Hours were an exact match.

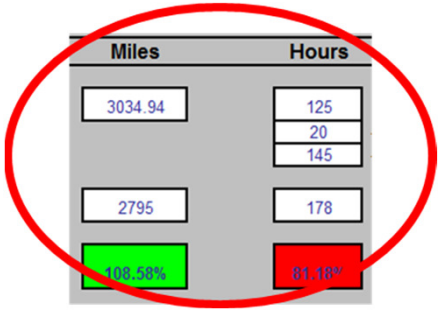
Question: How fast would TIMS Buses have to be driving to do an extra 1,300 miles in the same amount of time?

Answer: They cannot. Accuracy of TIMS Data is Highly Questionable

ITRE

NC STATE UNIVERSITY

TDTIMS – Bad Driver Hours



In this example, TIMS Data show that the 3,034 Miles driven daily by TIMS routes should result in 145 Daily Driver Hours.

However, the TD2-R reported 2,795 miles being driven each day while Payroll reported 178 Daily Hours being paid to drivers.

Question: How can TIMS show buses doing an extra 240 miles per day in 33 less hours?

Answer: Driver Payroll Error – Drivers were being paid for more hours than they were driving each day.

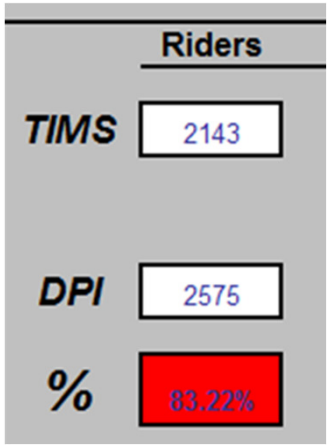
ITRE

NC STATE UNIVERSITY

TDTIMS – Bad Student Assignments

Accurate Student Assignments are the most important piece of the Annual TDTIMS Audit as Student Distance Data (how far your riders live from school) is one of the key factors in determining your annual funding allotments.

Therefore, if you do not have all of your daily bus riders assigned in TIMS, the data used to calculate your funding may be incorrect. In order for your TDTIMS Student Distance to be used in the funding formula, your TIMS Assignments must meet at least 90% of your Students Headcounts from the TD2.



This district submitted data with just 83% of their headcount riders being assigned in TIMS. As a result, their data could not be used in the funding formula.

Questions:

- *Who are the extra 432 students riding the bus that are not assigned in TIMS?*
- *Do schools and drivers not notify TIMS Staff of new assignments?*
- *What if there was a bus accident and the driver was killed, how would you know which students were on the bus?*

These are bigger concerns than not meeting the 90% student measure on TDTIMS.

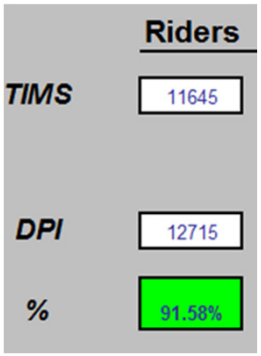
ITRE

NC STATE UNIVERSITY

TDTIMS – Minimal Student Assignments (90%)

Since student assignments in TIMS must meet at least 90% when compared to Student Headcounts, there are some districts who, upon reaching the 90% minimum, believe they have done enough and will submit their TIMS Data as Correct, Current and Accurate.

In this example, the district has "passed" the audit with 91.58% of Headcount Riders Assigned in TIMS.
However, their TIMS Assignments are still short 1,070 students when compared to the Student Headcounts.



This minimal submission could result in skewed funding for next year based on the student distances of the riders you do not have assigned in TIMS, but is accepted if at least 90%.

Hint: TIMS Assigned Riders should ALWAYS be more than your actual daily ridership. Otherwise, your buses are likely to be overcrowded and, in the event of a bus accident, your passenger lists would not be accurate. Also, you are unable to use TIMS to properly plan bus routes, make efficiency improvements or solve routing issues throughout the year.

ITRE

NC STATE UNIVERSITY

Preparing for TDTIMS

Self-Auditing TIMS Data
Comparing TIMS to TD2 and TD2-R Data
Reviewing TIMS Data Diagnostics

ITRE
Institute for Transportation Research and Education

NC STATE UNIVERSITY

Self-Auditing TIMS Data

Don't wait until the last minutes to discover there is a problem with your TIMS Data.

The TD2 and TD2-R contain the numbers that we compare to TIMS, so get an early start and complete your own internal audit of TIMS info.

We encourage you to compare your own data at the LEA Level and the individual bus level to ensure no large differences are present during the submission of TDTIMS.

Hint: Districts who utilize TIMS correctly already have the most current and accurate information available in the computer and have no worries when it comes to meeting 90% on any measure. They could submit TIMS Data at any time of the year and it would closely match what is being performed by Bus Drivers.

NC STATE UNIVERSITY

Comparing Student Counts

Student Counts

The TD2 lists the Total Headcounts for each bus in operation. Once the TD2 has been completed, you can compare your TIMS Assignments on each Bus to the Headcounts from each bus. There are several TIMS Reports that will provide you with the Total Assigned Load for all Runs or Routes.

If the Headcounts and TIMS Counts are similar, you can likely move on to the next Bus. If they are quite different (high or low either way), then you may want to speak to the driver and remove extra students from TIMS if needed or assign extra students if headcounts are higher than TIMS Counts.

BUS NO.	TYPE OF RUN	TYPE STUDENT	TOTAL # STUDENTS TRANSPORTED
172	R	R	56
173	R	R	48
175	R	R	52

Example TD2
Student Headcounts per Bus

Hint: this internal audit can help prioritize your updates on the buses that are the "most incorrect". Headcounts should never be more than TIMS Counts, but TIMS Counts should not be significantly higher than Headcounts or show more students assigned than the Bus Capacity.

NC STATE UNIVERSITY

Comparing Daily Driver Time and Miles

Bus Miles & Driver Hours

B	C	D	E	F	G	H	I
1	2	3	4	5	6	7	8
BUS	SCH.	DRIVER	EMP.	RUR/	INTRA	RT. MI.	ROUTE
NO.	NO.	NAME	ST	URB.	CITY	DAILY	HOURS
27						22	2.0
56						50	3.2
183						41	3.0
193						40	2.8
194						30	2.7

The TD2-R lists the Daily Miles and Daily Driver Hours for each bus in operation.
Once completed, you can compare TIMS Miles and Hours to the TD2-R Miles and Hours for each Bus. The *TDTIMS Diagnostic: Route Times and Miles Detail* will provide a bus by listing of TIMS Miles and Hours that you can use to compare to the real world TD2-R Miles and Hours

If the Daily Miles and Daily Hours are similar, you can likely move on to the next Bus. If they are quite different (high or low either way), then you may need to determine if the TD2-R is incorrect of if the TIMS Route needs updated to more closely match what is being performed.

Hint: The TDTIMS Diagnostic: Route Times and Miles Detail will provide a bus by listing of TIMS Miles and Hours that you can use to compare to TD2-R Miles and Hours. The information should be similar to each other but don't spin your wheels researching a difference of 0.2 hours or 2 miles. You likely only need to focus on large differences and discrepancies.

NC STATE UNIVERSITY

TIMS Data Diagnostics

In addition to self-auditing TIMS Data, there are several TDTIMS Diagnostics to help pinpoint potential errors or issues to be corrected.

TIMS Diagnostics are under the User-Defined Section of Edulog Reports

- Stops/Runs/Routes > Diagnostic: Stops Times After 5:00 PM
- Stops/Runs/Routes > Diagnostic: Stops Times Before 6:00 AM

  **Note: your data is not 'wrong' if you have stops listed after 5:00 PM or before 6:00 AM – the goal is to have TIMS accurately reflect what is really happening on a typical day.*
- Stops/Runs/Routes > Diagnostic: Route Time and Miles Summary
- Stops/Runs/Routes > Diagnostic: Route Time and Miles Detail
- Stops/Runs/Routes > Diagnostic: Neg. Times Between Runs
- Stops/Runs/Routes > Diagnostic: Runs Zero Loaded Miles
- Bus Passes > Diagnostic Route Riders Schdst <= 0
- Bus Passes > Students Stop not on Rte

NC STATE UNIVERSITY

Newer Diagnostics: Missing PowerSchool ID

Since 2016, there are two diagnostics to identify students and bus riders who are missing their Student PowerSchool ID.

- *All Students and Transportation > Diagnostic: Students Missing PowerSchool ID*
- *All Students and Transportation > Diagnostic: Riders Missing PowerSchool ID*

LEAs should avoid hand entering any students into TIMS. All student records should be brought into TIMS by completing an UPSTU using the TIMS Extract from PowerSchool.

Please check both diagnostics and make sure all students have a valid PowerSchool ID prior to submitting TDTIMS. Bus Riders missing a PowerSchool ID will not be applied toward annual funding allotments.

At the very least, TIMS Staff will need to hand enter the missing PowerSchool ID for all students missing this information.

NC STATE UNIVERSITY

Other Things to Check in TIMS

As part of preparing for TDTIMS, examine the data for completeness before generating any of the reports.

- *Are your Bell Times and Bell Time Windows Correct?*
- *Are all riders located and assigned to stops?*
- *Are all riders on routes?*
- *Do both AM and PM runs exist and are they placed on correct routes?*
- *Do you have any runs with zero mileage due to incomplete run directions?*
- *Is the slack time correct for routes serving multiple runs AM and/or PM?*
- *Have you included special needs runs and routes?*
- *Are the irregular and mid-day arrival and departure times accurate for all Special Need Routes?*

NC STATE UNIVERSITY

Submitting TDTIMS

TDTIMS Workbook & Signed Audit Sheet
TDTIMS Reports & Processor
Support Staff Data Review & Transfer

ITRE
Institute for Transportation Research and Education

NC STATE UNIVERSITY

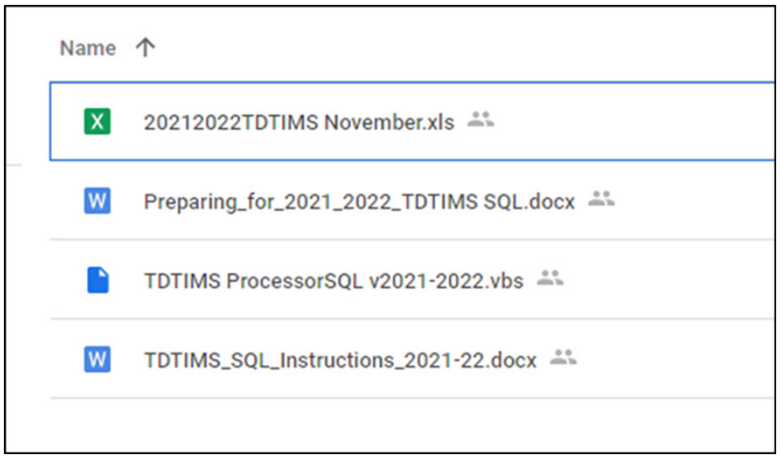
Submitting TDTIMS

Refer to the *Instructions for Submitting* document for the Step-by-Step Details of completing TDTIMS.

TIMS Support Staff will email a link to a Google Drive where LEAs can download the Workbook & TDTIMS Processor.

The following Demo corresponds to LEAs running TIMS-SQL.

For the handful of LEAs still operating TIMS-NT, the instructions, Google Drive general steps are slightly different.



NC STATE UNIVERSITY

Submitting TDTIMS

DEMO of TDTIMS Submission Process

- *Setting up the TDTIMS Folder, Workbook and Processor*
- *Running Edulog Maintenance*
- *Railroad Crossing Report, Ride Times Report & Riders Report*
- *Reviewing TDTIMS Workbook Reports*
- *Completing the TDTIMS Workbook & Audit Sheet*
- *Generating All TDTIMS Reports & Making a TDTIMS Backup**
- *Running the TDTIMS Processor*
- *Contacting TIMS Support Staff for Data Reviews & Transfers*

**This step only applies to TIMS-SQL Sites. The TIMS-NT Processor will create the backup and generate all reports automatically.*

NC STATE UNIVERSITY

Understanding and Submitting TDTIMS

Questions or Comments?

What is TDTIMS and Why Do We Do It?
Comparing Data Internally & Correcting Errors
Reviewing & Preparing TIMS Data
Completing the TDTIMS Submission Process

ITRE
Institute for Transportation Research and Education